

BC: The Mountain Cantons

Sharing & Community
in Post Oil Settlements of BC

SSP 33 Castlegar 2010



Balfour + Associates • Strategic Planning
Balfour + Company • Architect

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Social Quake Warnings.

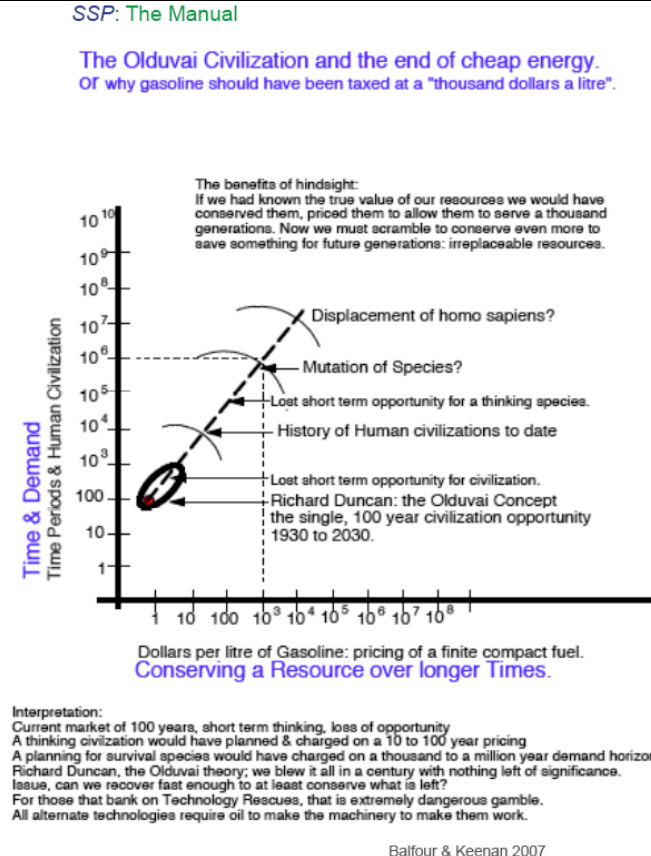
- Social upheaval from approaching or now impacting global changes from peak oil to climate change can be either acknowledged or ignored.
- If warned, educated and helped to adjust we get severe change but under our own control to some extent, we can manage damage and help others who are at risk, including our own children. This is the soft landing approach. This is the core of the SSP process started in the Vancouver City Planning Commission.
- If we continue to ignore or do Business as Usual, we will suffer the extremes of a crash. The Social Quake may not be survivable.

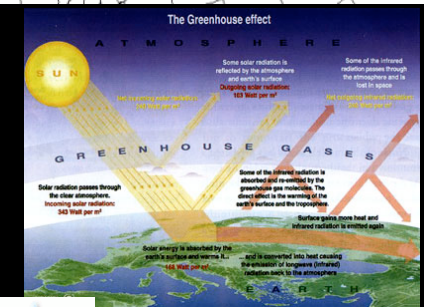
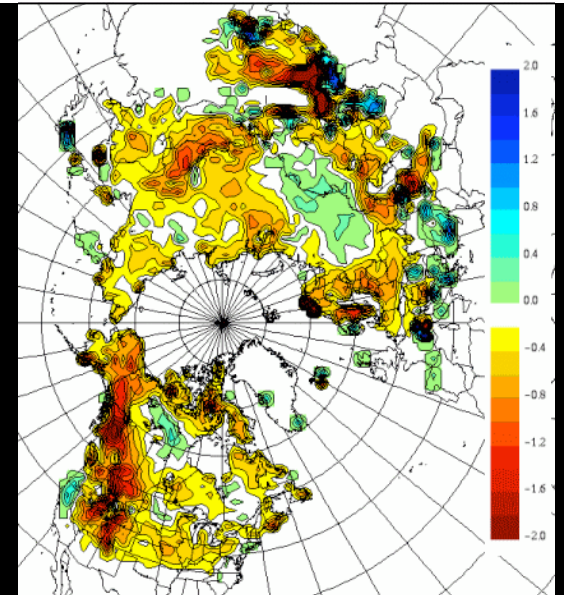


Strategic Sustainable Planning: Vancouver City Planning Commission

- ## All teams at first took an Every Man for Himself approach

Since those first sessions, the world has started to realize how much of the speed of global impacts of peak oil, climate change and economic shake up are not a far off events, but they are here NOW.



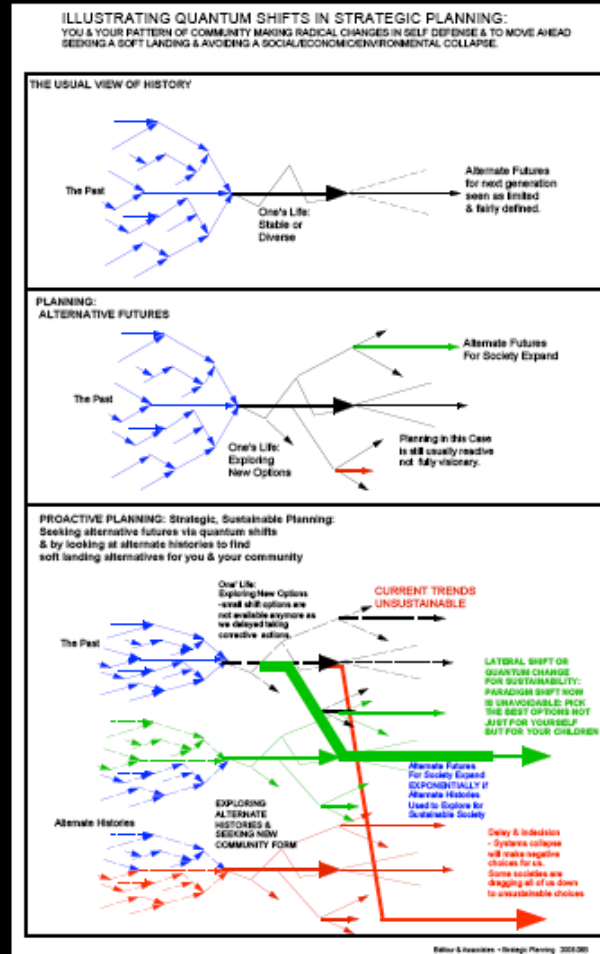


Any
guesses as to what this is ?



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Radical
lateral
re-thinking:
-a
necessity.
.....Or failure

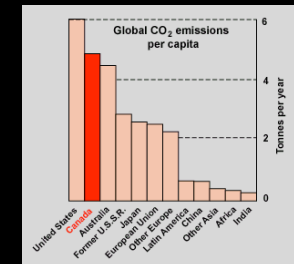


We have created a century of waste and city engineered for cars.

This city is not sustainable nor even functional for our future....

The 21st century will be more like the 18th century, not the 20th.

Re-learning clustering & Land Conservation After Oil



We need to learn from Traditional Communities

- Who thinks we have a problem determines if the rest of us think we have a problem?

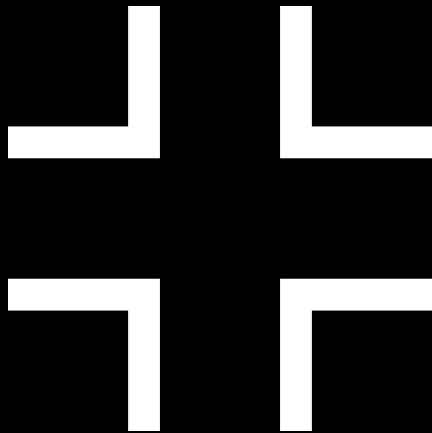
Werhmacht?

Oh now we have your attention.



News media: no balance, in fact armed forces since 1972 Club of Rome report have been tracking, planning consumption of resources. It is the civilian side at a disadvantage as it has no long range planning philosophy or strategic thinking about survival. So it is only the military subset that considers survival. Is this safe?

This, of course, is your problem.



Alarm!
False alarm?
Not really... just too late.

End of Empire comfort and complacency....

Not losing the audience.



- The SSP presentation material is dense and interconnected. It will challenge your beliefs and assumptions on many levels. It will make you uncomfortable to hear you cannot get to keep everything you now take for granted.
- “Mad Max” solutions are the usual first step in problem solving in planning at this level, but the purpose of these presentations is to help us find the soft landing to a new social economic reality, and quickly, with an approach of sharing and cooperation as the first goal.

... do not fall asleep, your survival is at stake.

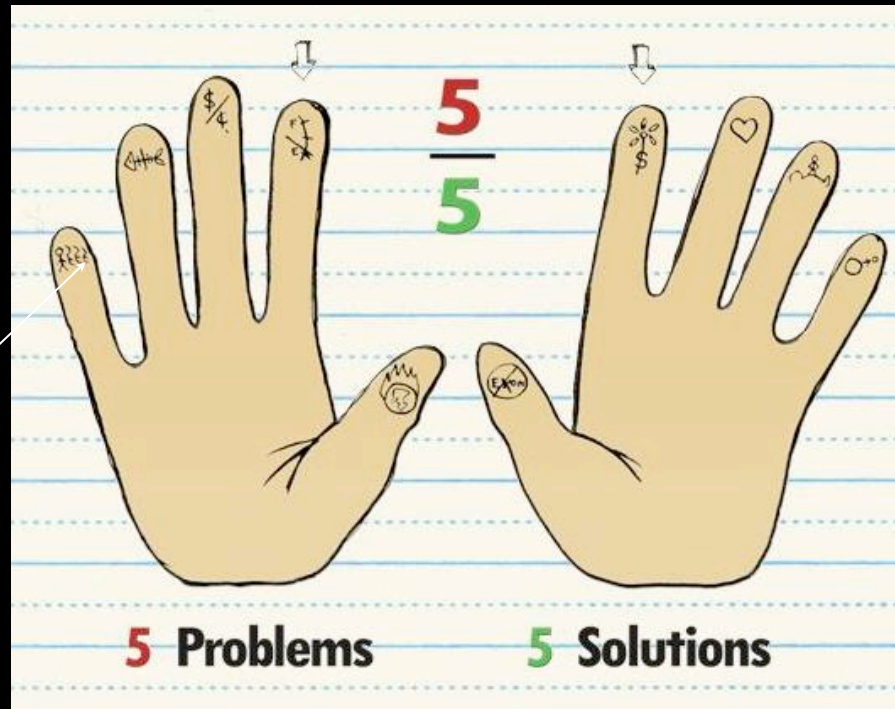
Now we have your attention.....

WE are here to talk about SOLUTIONS!



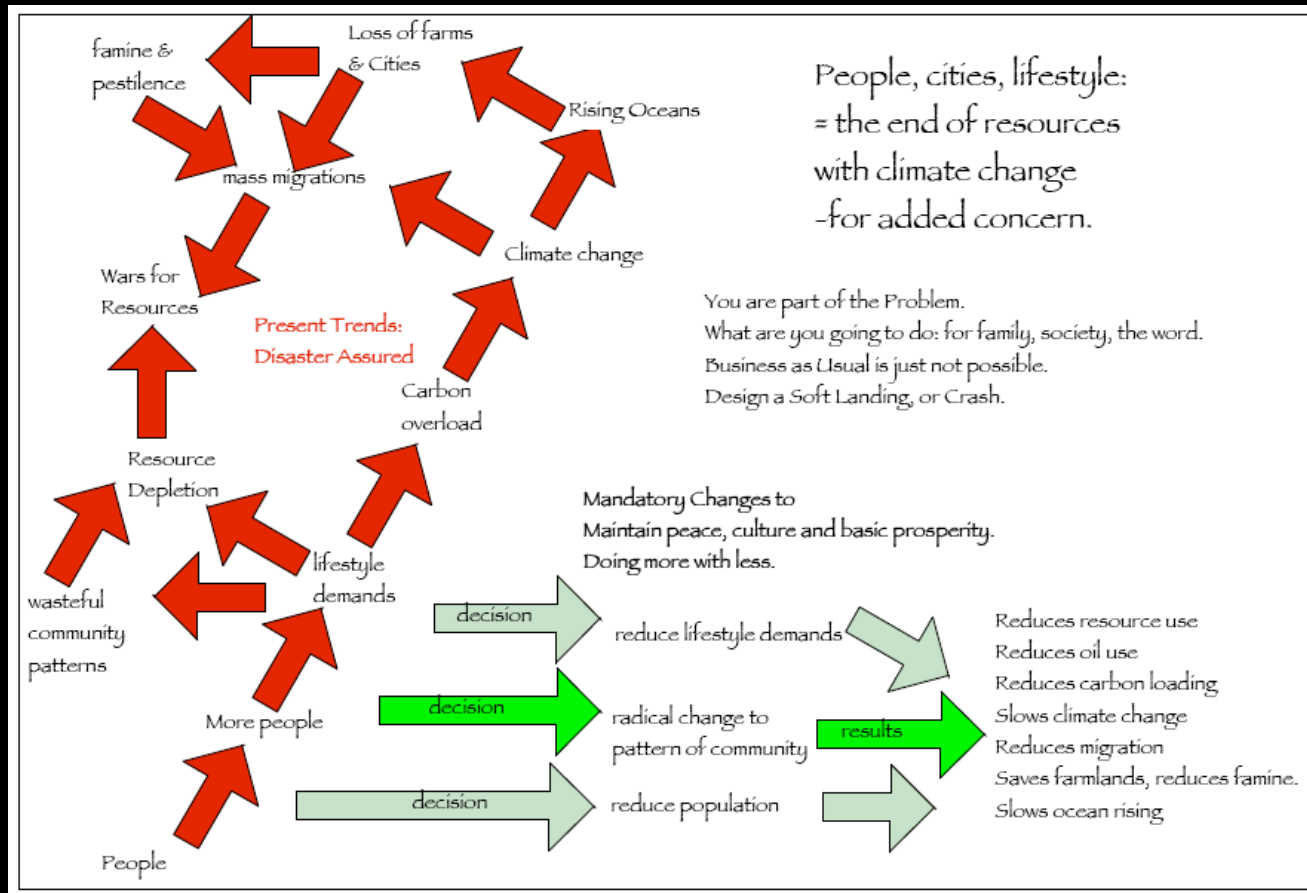
From How to Boil a Frog: The Movie

Yesterday's list versus
a new list
addressing
real sustainability.



In this exercise we have little time, so do not worry about if you might be wrong,
you may be the most right....

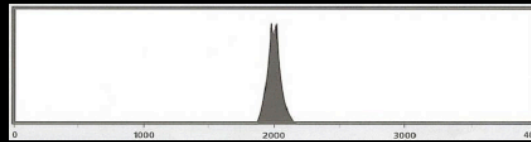
YOU and the World



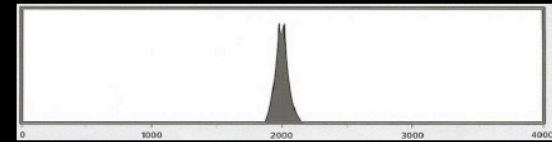


Our Point in Time:

Oil Curve in relation to history:

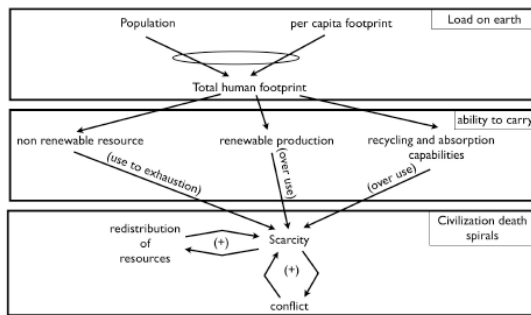


Human Population too??????

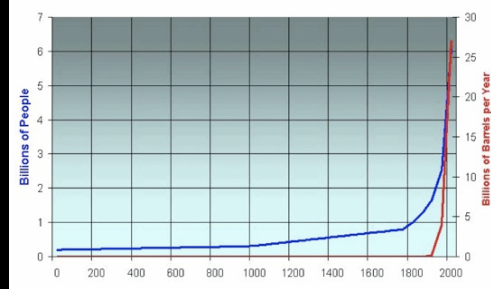


Current Culture and Civilization is blip in geological time.
 We have harvested 500 millions of years of stored solar energy & wasted it.
 The human population explosion matches Hubbert's Curve on oil consumption.
 Our numbers pretty well have to follow the oil depletion curve down.
 Technical Solutions for energy replacement are not enough, nor reliable.
 How do you follow the graceful adjustment and find a soft landing spot?

How Civilizations Collapse

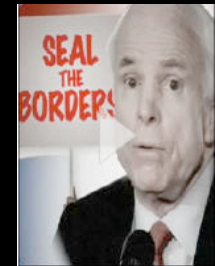


World Population and Oil Production

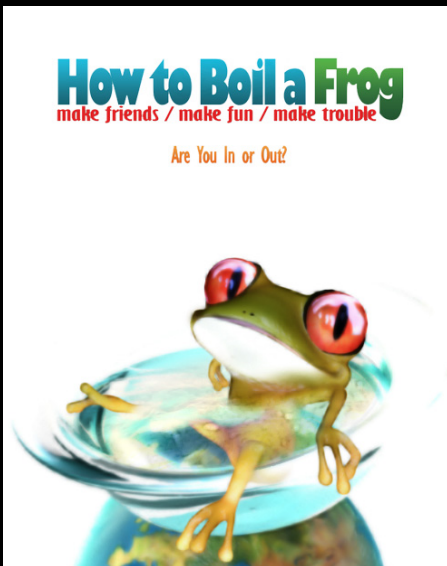


What is happening to us?

- Peak Oil Impacts: the end of cheap energy.....
▼
- Plus new costs of all goods & a reduction of services
- Climate change: disruptive weather, more rain, but summer drought
▼
- The timetable of rising Ocean Levels has moved up: but hard to track
- Mass in-migration to highly attractive areas like this: where do they live?
▼
- The whole linear planning, business as usual, is at an end.
- How can we learn to plan ahead, take charge, when change is so great?
▼
- Your pattern of community has to change. How fast, which direction?



What can get worse- \$ & Land

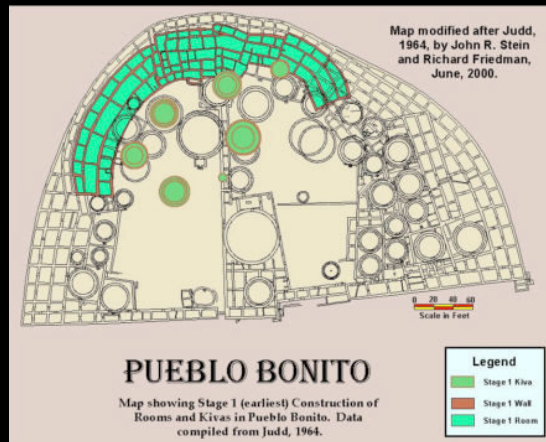


- Peak Oil Price shock creates banking instability & greater divergence between rich & poor; we better learn to help each other. (For local economic protection: Bologna models.)
- Loss of CAPITAL PORTABILITY means more migrants move without assets or ability to pay for new lands or shelter. The value of most goods declines, but not food, water or land needed to access them.
- This introduces a new risk of labour contracts, even a new partial enslavement or a “new serfdom” as access to land is controlled by those that have land in the beginning.
- Hopefully the fact that the government in some provinces and states have large land holdings and the ability to provide land but also restrict access to make sure land & access to land is not abused.



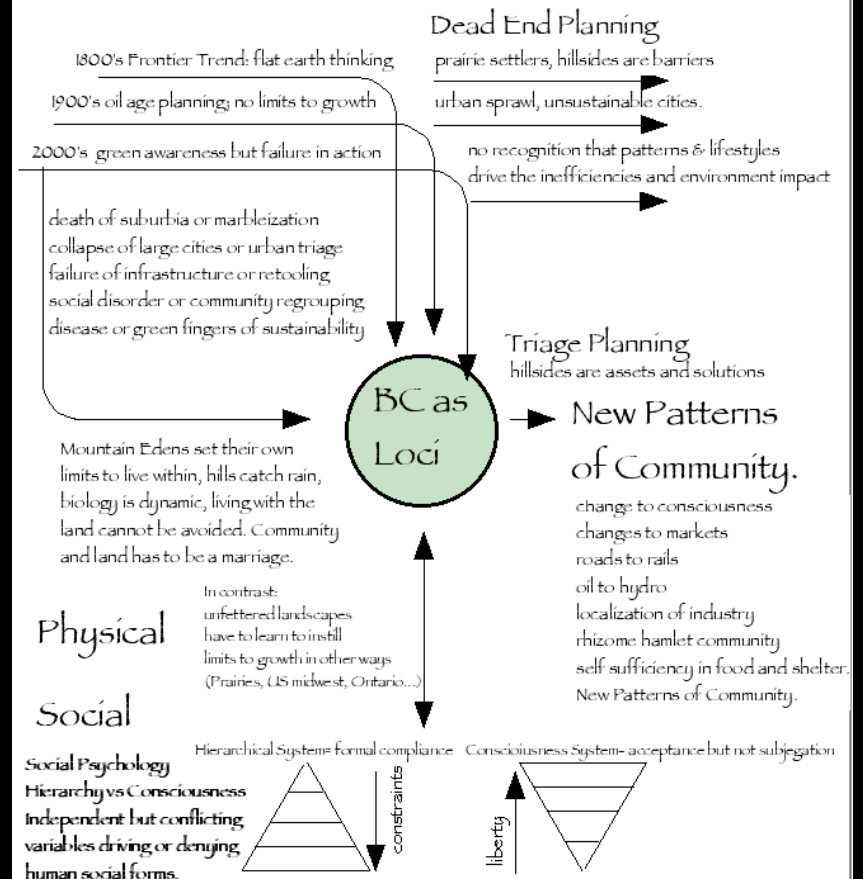
1972 Club of Rome

- Limits to growth, we knew then about Peak Oil, Peak Everything
- Richard Duncan, the Olduvai Theory of Supplies for only one culture of a hundred years; but it started in 1930.....



Crossroads in Human Settlements

Global Impacts of climate change, peak oil and migration



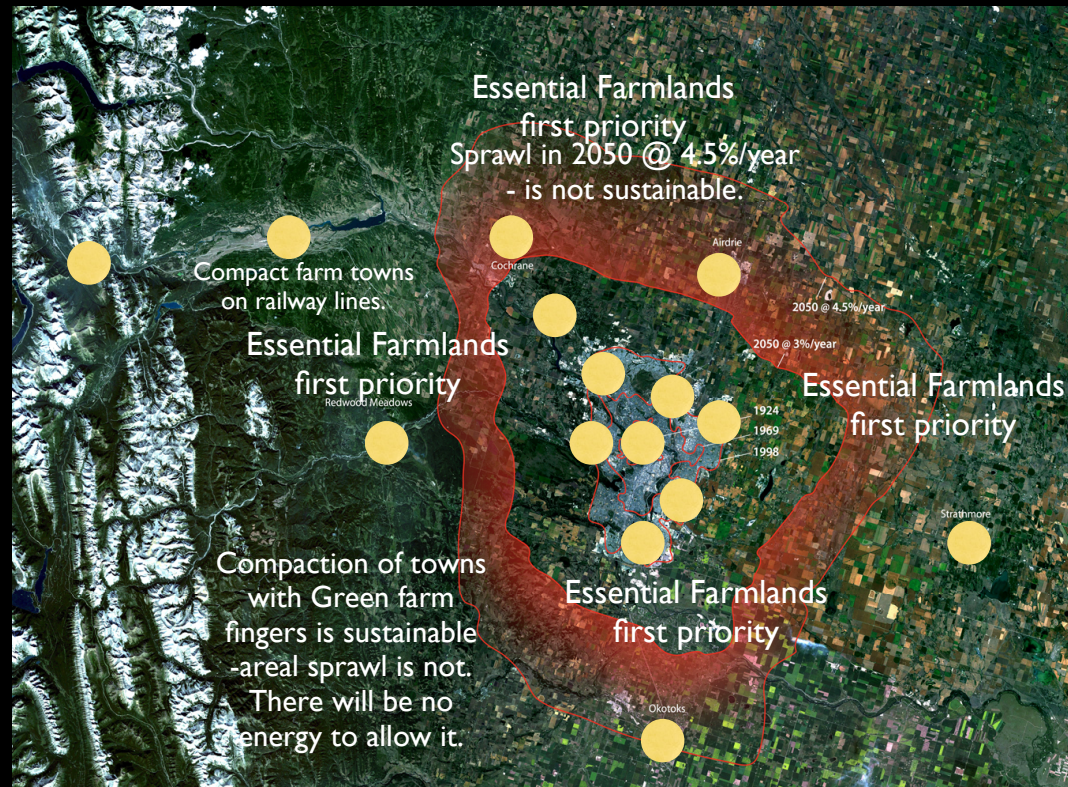
An aerial photograph of a modern architectural complex, possibly a university or corporate campus, featuring a large green lawn, several buildings, and a winding path. The image is partially obscured by a semi-transparent green rectangle that serves as a background for the text and navigation elements. At the top left of this rectangle is a navigation bar with a series of colored squares (red, orange, yellow, green, blue) and a 'MENU' button. Below the navigation bar is the logo for the Canadian Institute of Planners (CIP), which includes the letters 'cip' in a stylized font and the full name of the organization. The main text of the slide is centered and includes the title 'APPI CONFERENCE 2010', the dates and times of the event, the location, and a promotional message about a transformation and a conference theme.

- ¿survival?
feet on earth, head in clouds.

A Contrasting Scenario: “Growth for Growths Sake”- oil age planning

Growth that cannot happen.

- Calgary example:
- End of water
- End of Natural Gas
- Climate Severity
- Community dysfunctional pattern for the post oil era.
- The Community will have more people, smaller footprint, more farmlands.
- but not more land area



*From
2008
PCI
AGM

A Plan ‘A’ disaster: the resources are not there

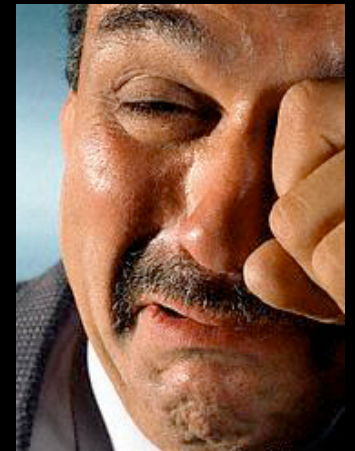
Global Impacts: Dealing with Denial

- Limits to Growth from the Club of Rome 1972, warned us then.
- Hubbert told of Peak Oil. We are in fact into peak everything.
- Since 2005 in BC, at least the end of cheap oil is now known.
- But it took news of the Wehrmacht studying the impact on the German army for the general public to acknowledge the reality.
- In fact the military and other strategic planners have known and planned in their own way for this stage all along. -But not with the best intent for civil society, we need to add.



... a denial of sharing.

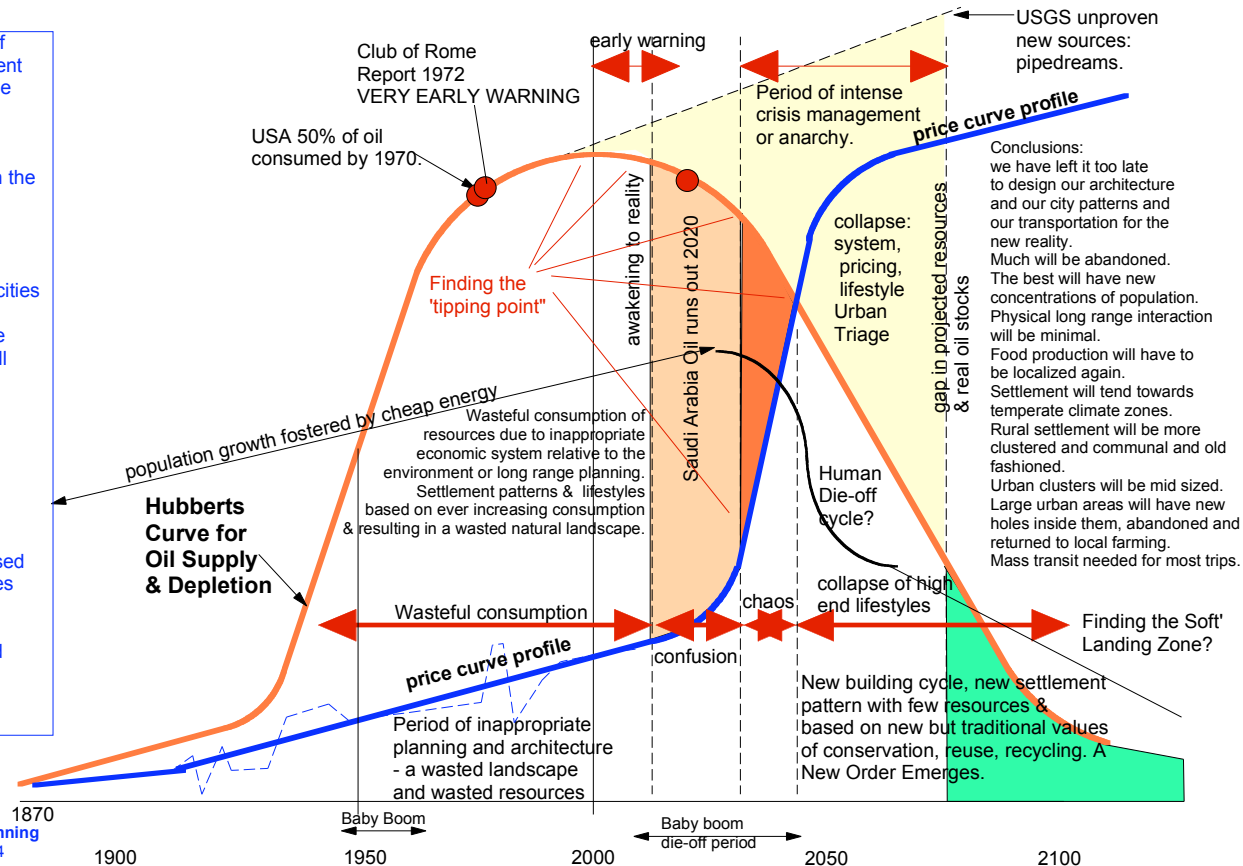
- A sharing society with a philosophy and ability to adjust to a new reality, or a Mad Max decline destroying both family and culture.



We are neglecting the design of appropriate patterns of settlement & transportation systems for the fast approaching new reality of energy scarcity & resource depletion.

We need strategies to deal with the following new realities:

- settlements will tend to be located in temperate climate zones & on higher ground.
- large sections of our existing cities will be abandoned as they are unsustainable. New appropriate concentrations of population will emerge as physical long range interaction becomes minimal.
- food production will return to restricted smaller areas and serving local needs.
- mass transit will be used for inter and intra city movement of people & goods.
- settlements will be compromised of smaller towns, smaller houses & narrower streets.
- localized industry, farming & market return. Proximity to food production, social networks & natural reserves will mark points of new community.



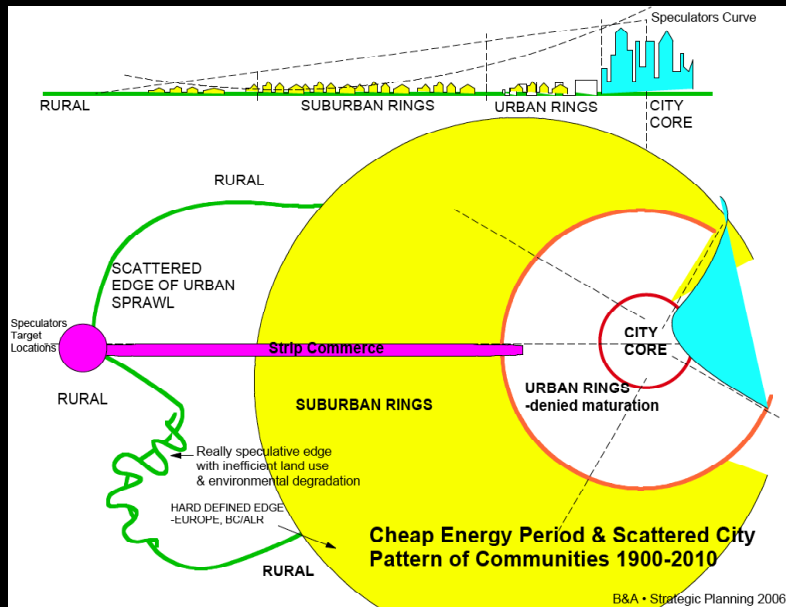
Conclusions:
we have left it too late
to design our architecture
and our city patterns and
our transportation for the
new reality.
Much will be abandoned.
The best will have new
concentrations of population.
Physical long range interaction
will be minimal.
Food production will have to
be localized again.
Settlement will tend towards
temperate climate zones.
Rural settlement will be more
clustered and communal and old
fashioned.
Urban clusters will be mid sized.
Large urban areas will have new
holes inside them, abandoned and
returned to local farming.
Mass transit needed for most trips.

Balfour & Associates • Strategic Planning
2003.11, after Hubbert, Rees. rev 06.04

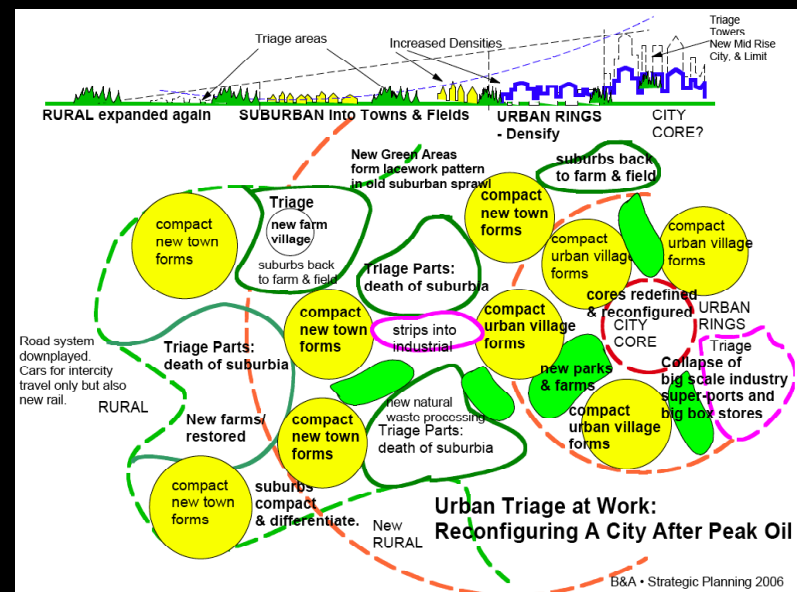
Hubberts Curve & Sociology- from SSP I

Vancouver Planning Commission 2005

- Reruralization of the Suburbs & **Claw back of farmland.**
- - not a wish -but a necessity to achieve sustainability.
- the new Green fingers into urbanity= sustainable forms.



(The current pattern is possible only with cheap oil).



(Suburban fingers increase to urban village density).

Marbleization after Peak Oil



Darn, it was just peak oil 5 years ago....

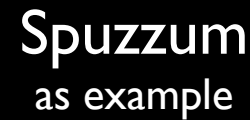
Coming Attractions:
End of Cheap energy, climate
change, ice sheet collapse,
migrations...
But who is planning for such change?



SSP update -Global Impacts 2010

Hinterland Impacts

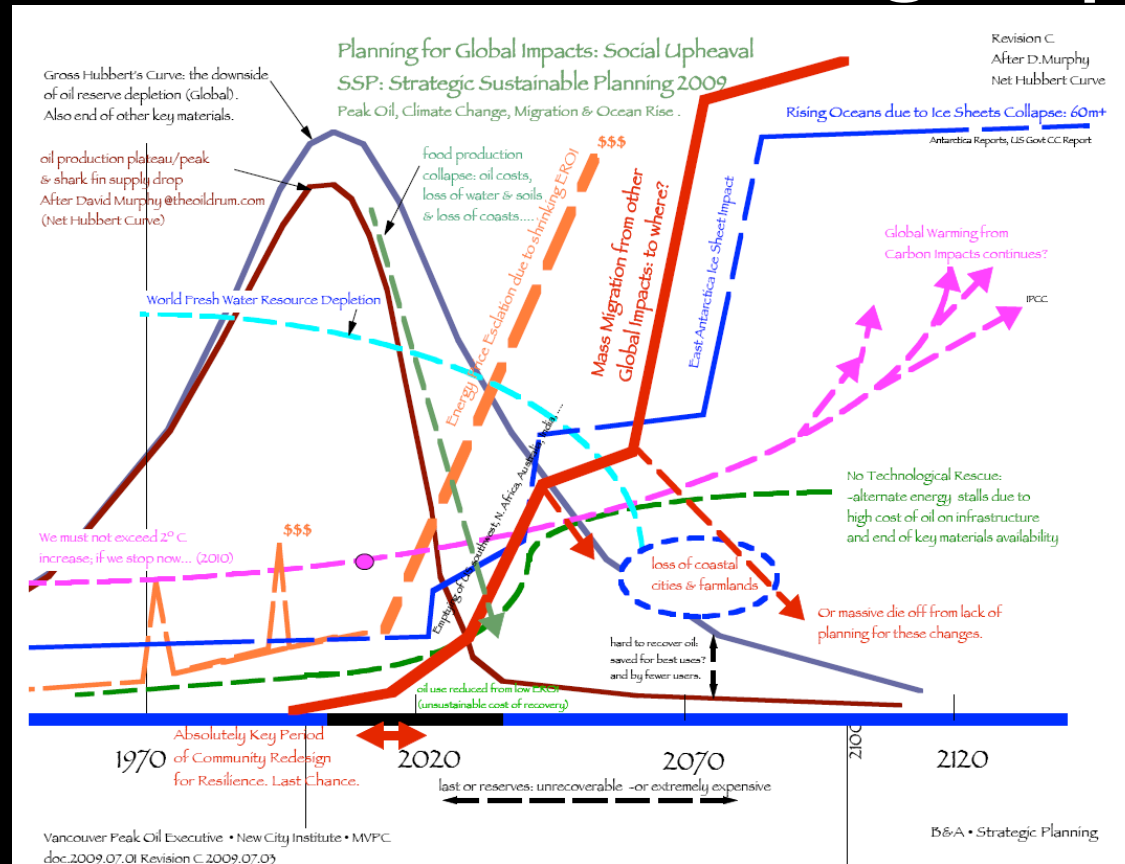
Nelson as example



rediscovery of
railway
as lifeline: forming a
'string of pearls' of
new bench farm
hamlets.

U.S. has
a Plan C:
Canada.

Combined Planning Impacts: updated

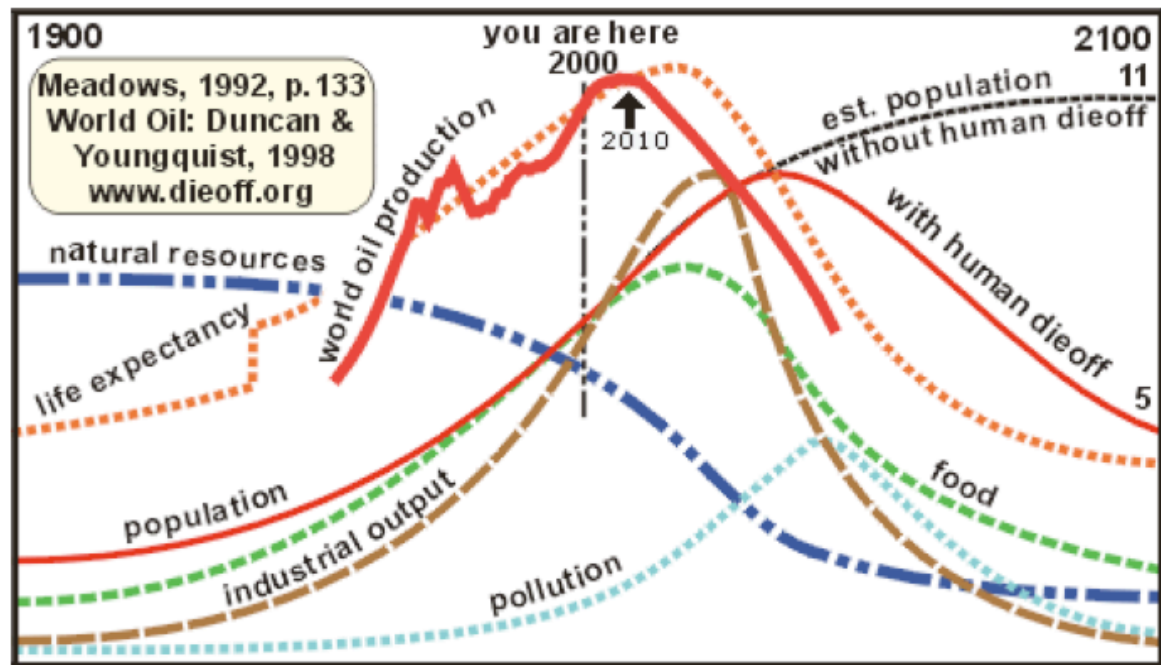


Adjustment period for any soft landing is now much shorter: options are reduced the longer we put off needed action.



the great change exchange and others are looking to inspire you to act to
save your progeny at least...

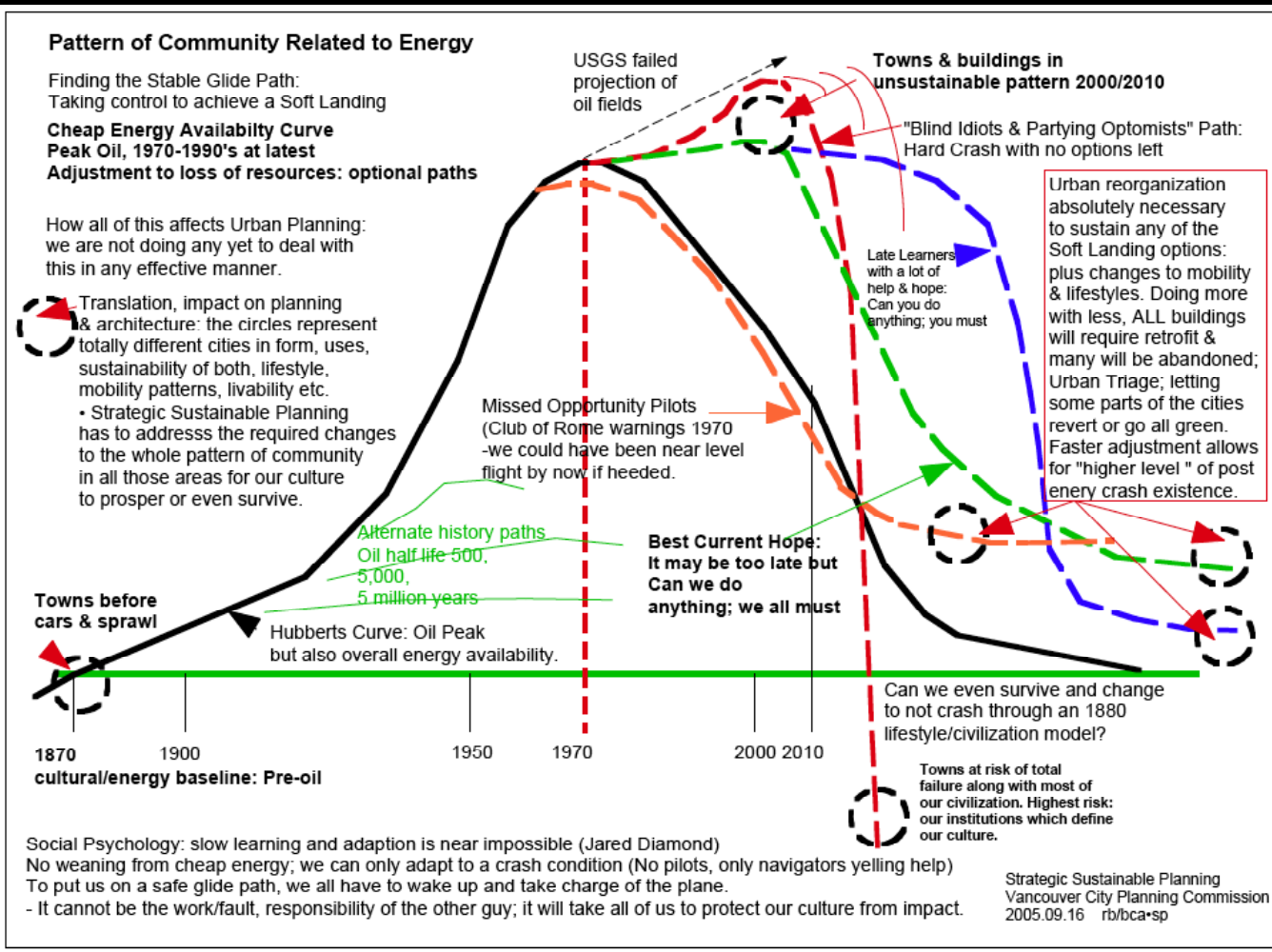
Which scenarios?



thegreatchange.org
vancouverpeakoil.org
friendsofgaia.org
ottawadissenters.org
america2.0
plancanada.com
-just some exchanges.

call Helmut....





MOVEMENT: Pattern of Community.

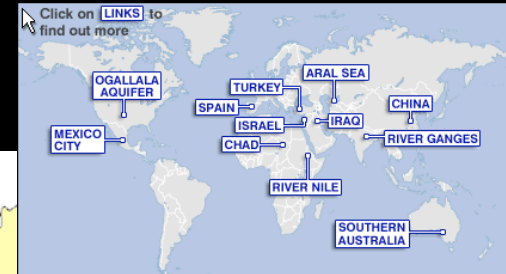
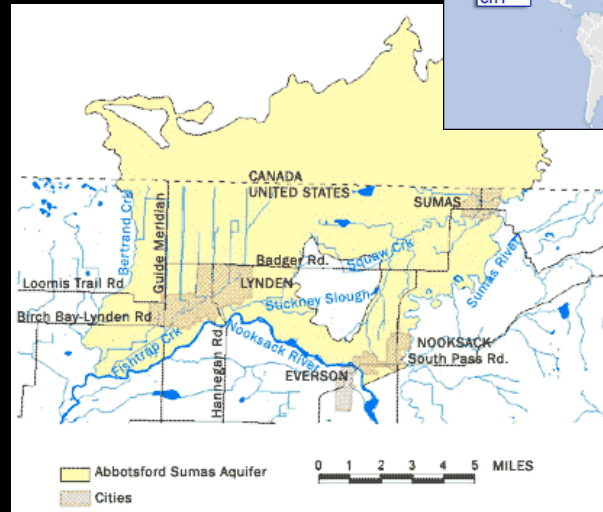
Needed:
Rapid & radical
change to the
pattern of
community.

Not small steps
and don't take
too much time
talking.

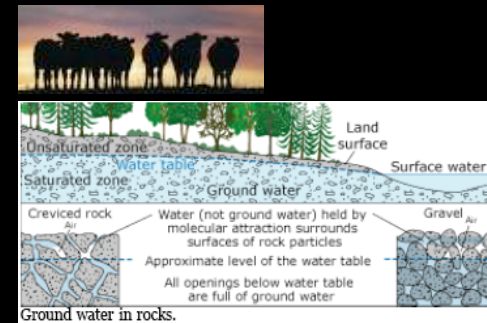
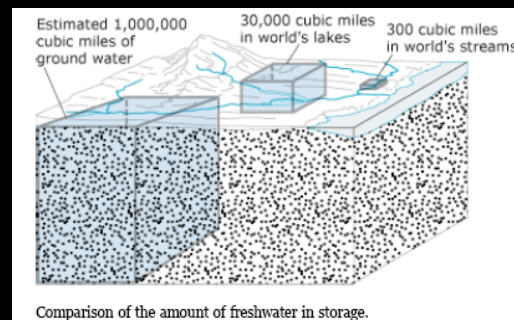
Ancient Aquifers Dying



Many aquifers cross international boundaries, making control & protection impossible as each we begger our neighbour to consume the resource first.



World Losses trigger new migrations....



Abstract City: Triage Mapping

Post Oil, Climate Change and Self sufficiency.

Introducing a finer grain to the pattern of community.

Starting with Green Fingers Triage Concepts

Triage Zones of Post Oil Cities

- A Oil Age High Rise Cities: culture centres: must compact and relocate to remain viable. Green fingers internally.
- B Inner Ring: Triage Area 2, introduction of urban villages of Old City Suburb Ring: Ready to Marbelize!
- C Decay Zones and Strips- Reclaim or local new industry
- E Industrial Zones viable if small and rail oriented
- F Old Towns, interim suburbs, possible Old Towns again, complete, self sufficient, localized industry at all scales
- G New but now baseless suburbs: Triage Area 3
- H 3rd Tier distant suburb: never to happen; only hope is to seek independent self sufficient economic status. Triage 4
- I Your own definitions..... speculation pockets of destruction.
- J Speculation suburbs: Likely full death and collapse
- K Timeless Towns, special places, with independent systems
- L Timeless Towns with restricted suburban footprint/green edges
- M Last Stands of Green: Fortresses; Forests and Fields
- N Last Stands of Green: Farms and Fields, Your Food Security
- O Rural Village under controlled growth, farm & rail oriented
- P Old Rail Towns overlooked: the new potential gems
- Q Old Rail Towns limited suburbs: farm integrated.
- R Rail and Farm Pre Oil/Post Oil whole communities
- S Hinterlands to protect for Real Sustainable community
- T Environmental Basic NO GO zones
- U Introducing Urban Green Fingers/marbelization
- V Introducing Urban Villages/differentiation/marbelization
- W Niche farms & villages; pocket survival mode.
- X Unknown Special Places
- Y Eco Border Gems
- Z Green Energy Pockets to explore for sustainable community; wind, tidal, geothermal.....

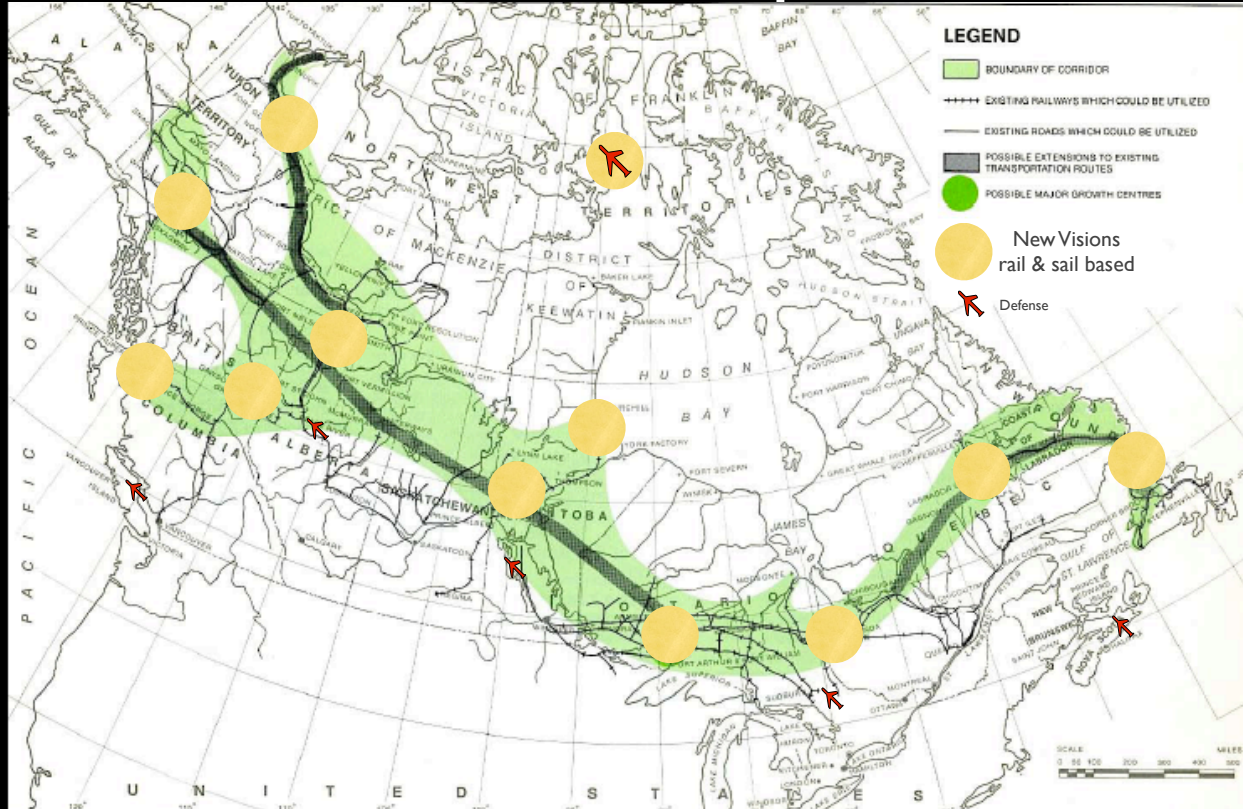
Ocean Side Cities:
Global Climate Change Impacts
Prepare for abandonment of lower 6m new intertidal zone, or with Ice Sheet Acceleration, up to 60m ocean rise.

Balfour & Associates • Strategic Planning
New City Institute
Vancouver Peak Oil Executive

Not as some
ideal, but because
we no longer have
a choice but to do
the right things.

The Green Fingers Mandate

The Mid Canada Development Corridor



Proactive
Solutions



What limits?

Do we take in post oil & climate change refugees, or not?

Homesteads: @ 9% of BC ➡

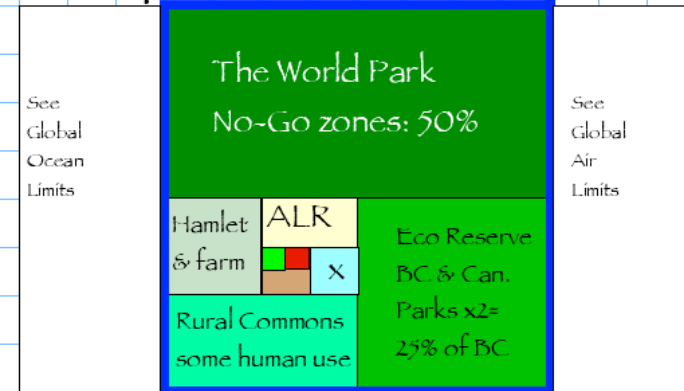


Limits to growth model

Commons & NO
Go zones= 90%

Human
Settlement
North
America.

Global Impacts: land controls for Triage Planning.



See migration controls.

Blue Square = BC before rising oceans.

Key Policy	Land Use	Management
	No-Go zones/World Parks 50%- federal controls.	
	Eco-reserve II - 25% limited access- Canton managed.	
	Rural Commons 12+% Commons in stewardship	
	* Hamlet & farm; subsistence farming norm 6%	
	* ALR Key societies productive farms. 3%	
	'X' factor 1.5%, the loss of land to sea rise.	
	1% urban triage in flux- reversion to half nature	
	1% of urban area marbled in recovery.	

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The Empire of Earth Energy
Richard Duncan/Olduvai Theory
says we can have on of these to
last 100 years. It started in 1930.

- Population Growth
- Energy consumption growth
- Planet heating
- Globalized Trade

U.S. economy goes in tank

loss of oil/economic shifts

End of Globalization
Re-start of localized
economies

- GLOBAL INTEGRATION
- JOBS SHIPPED TO ASIA
- U.S. unemployment soars
- Purchase collapse/ poor of U.S.

Sales fail
China has
job losses

Post Oil Community
Learning from the old world
Rhizome pattern of sustainable
community, or collapse.
Your choice.

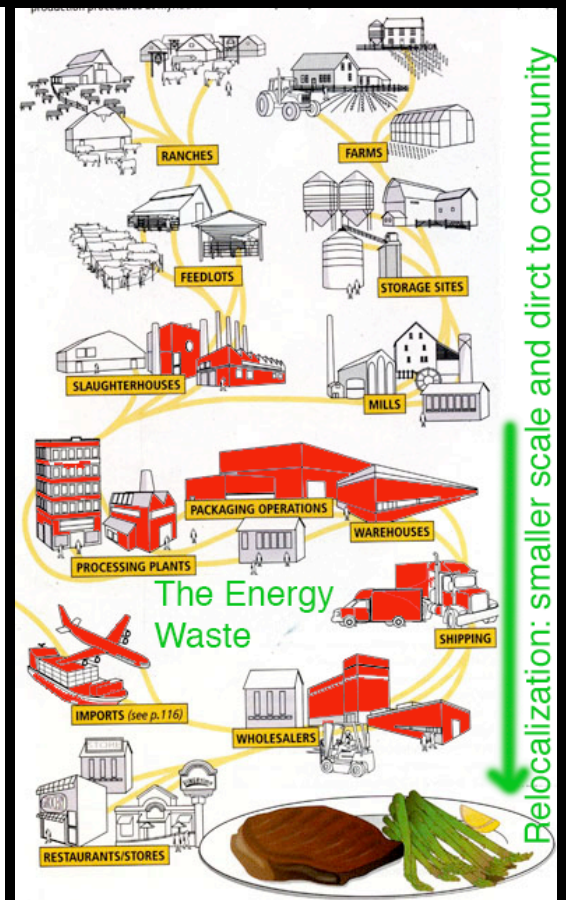
of suburbia
of Alpha cities
industrialization

mass migrations

Radical shift in pattern of community, lifestyle & mobility.

long distance food sources, local food production necessity.

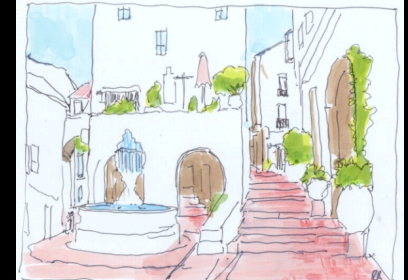
social consciousness/paradigm shifts
or collapse



Relocalization: smaller scale and direct to community



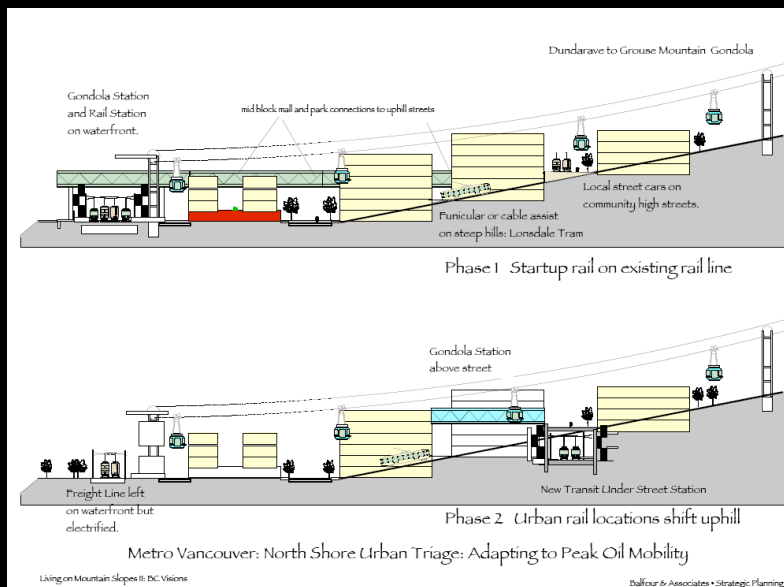
Homesteads, Hamlets & Villages: Adaptive Settlements



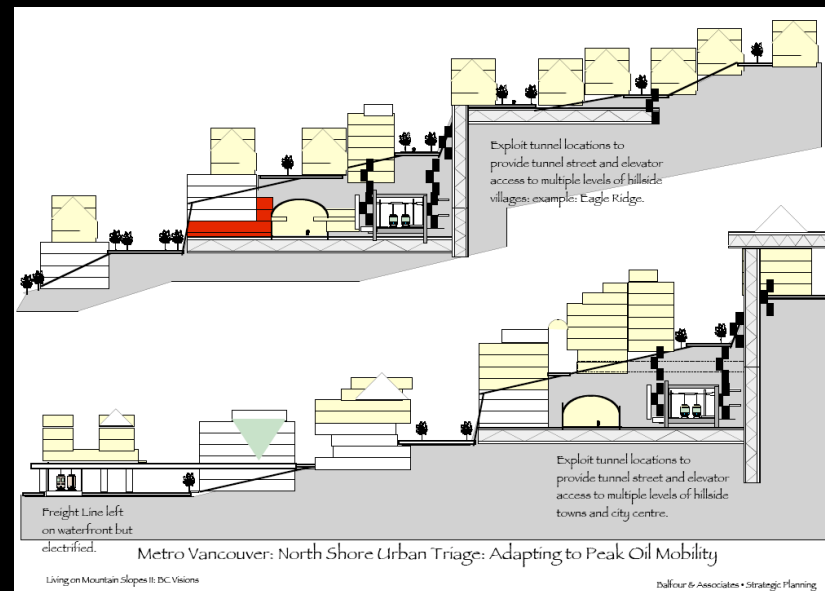
- Loss of oil/switch to railway/steam power (wood fuels)
- Downscale of cities/new sustainable towns on rail lines
- New rail lines to access new belts of farm/town/forest pattern
- Settlements seeking good climate/good soils, water access
- Refugees seeking defensible communities/ new towns & villages
- Rudimentary forms of settlement will be the new norm, not luxury
- Generalists, & few specialists will be needed.
- Relocalization of all industry, not globalization will be unavoidable
- So get used to it and plan for adaption



Visions of Hill City & Rails



Lower Level, possible abandonment?



Upper Levels: Long Range Sustainability

Hierarchy & matrix Pattern

Scale	Plan	Populations	Areas
BC Limits	35M population	350,000 sq. Mi.	
BC at 2010	3.5 Million		

10 Cantons	Factor 1/10	Factor 1/10
Canton	3.5 Million	35,000 sq. Mi.

	Factor 1/7	Factor 1/10
Valley/City	500,000 pop.	3500 sq.. Mi.

Town 70,000 pop. 350 sq.. Mi.

Village 10,000 pop. 35 sq.. Mi.

Hamlet 200 to 1500 pop. 3.5 sq.. Mi.

Homestead 30 to 200 pop. 0.35 sq. Mi/ 200 acres

Home-site 4 to 30 people 1 acre net
7 home-site families share in 200 acre homestead
of which half the site is direct farm, half is commons
with some utility; forest and field (grazing),
watercourse protection, habitat for wildlife

Nelson: Canton Capital in a post oil resettlement Matrix?

What place is Ymir in a post oil resettlement Matrix?

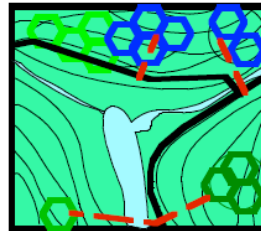
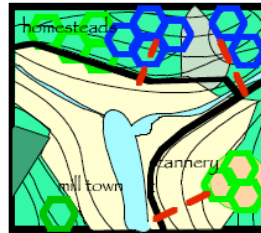
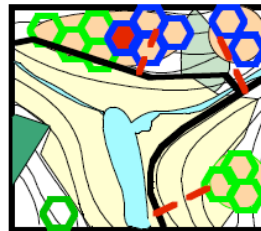
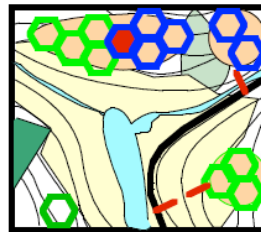
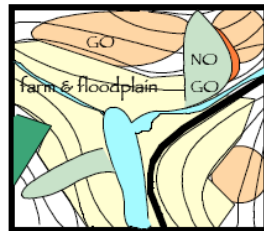
Human community power of 7
Nature Reserves power of 10
Nature doubles reserves at each step in scale.

A: Geddes:

A geological map showing a river, lake, and a landslide area. The map includes labels for 'bedrock under', 'river', 'lake', and 'slide'. The slide area is marked with a red circle and the word 'slide'.

Assign Exclusion Zones, NO GO zones, unstable slopes, north slopes, habitat, water courses, archeology sites, and set aside all good soils for agriculture including Niche Farm sites on hillsides.

Inclusionary Zones: priority for farm and new settlement in low impact forms.



1. River and rail main lines used for stage one 2010.
2. Local check for water & soils 2012.
3. New main roads put in for hamlets & farms 2013.
4. Homesteads and hamlets established. 2014
5. Evolution of villages, towns, local industry 2016
-- gondolas and new rail spurs added.
6. Third wave migration: 2020, new towns and
triage modification of oil age towns still viable.

Social, economic and ecology mix allows for differentiation, maturation of a few select hill towns on the rail network or on coastal routes.

Rail access stage: hilltowns, 10,000 people.

New Hill Arterials & homesteads: 100,000.

Hamlets, and homesteads: 1,000,000

Villages, hilltowns, gondolas: 10,000,000

Cities: Triage and New towns: 55,000,000 in BC.

H: Evolution of Green Fingers of Sustainability (Balfour, Keenan, Rees). Compaction of our environmental footprint by multi stage retention of green areas at every scale.

This is not a development programme but an exercise in post oil emergency resettlement with as much preservation of nature as a first goal.

Canton Assessments

Design with Nature

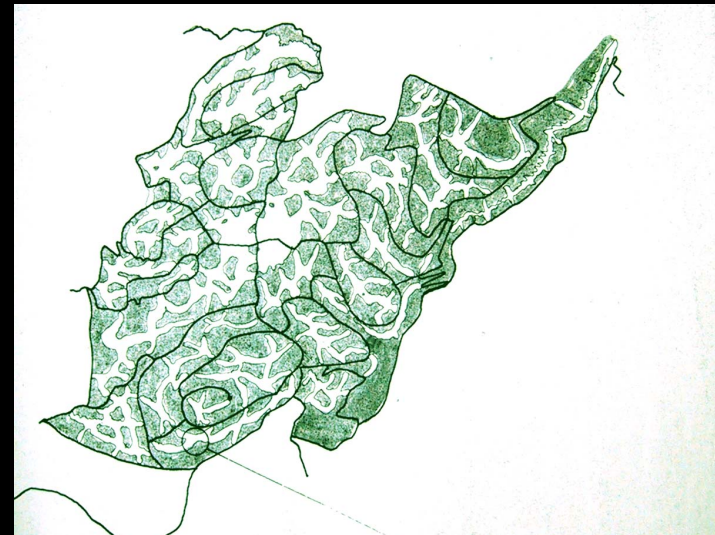
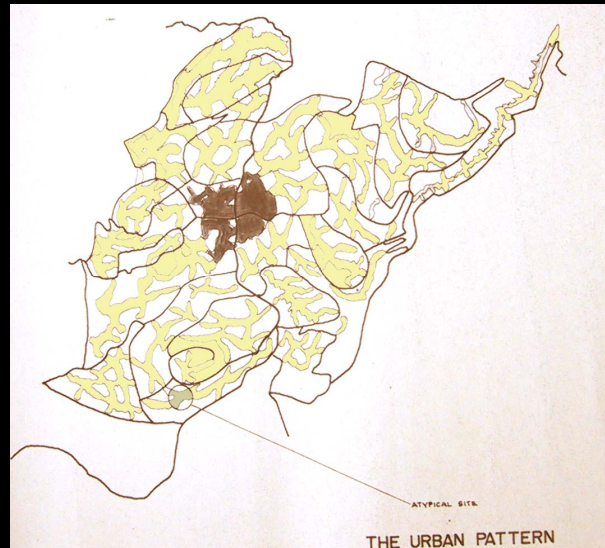
Limits to Growth

Green Fingers of Sustainability

Sumas Mountain New town: 25 sq.mi., half million people.

Pattern Language

See
Sir Patrick Geddes
Christaller
Ian McHarg
Chris Alexander
David Spearing
R. Balfour



The village fingers/green fingers lacework pattern of hilltown design with nature from the Sumas Mountain New Town Model. Balfour 1974

Triage city: North Vancouver

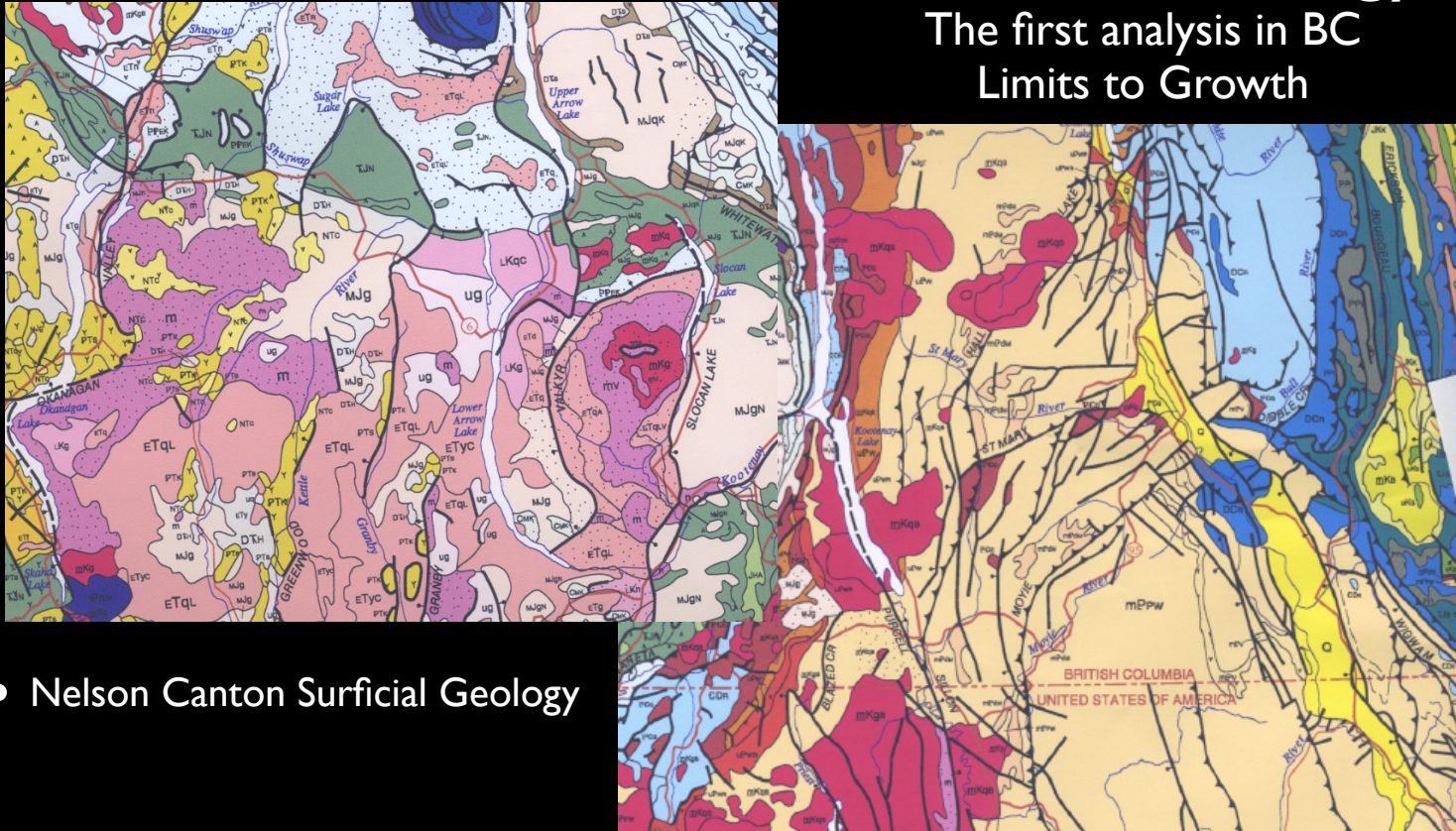


Post Oil, post ocean rise, localized economy: small scale and fit into the landscape.



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The first analysis in BC



- Nelson Canton Surficial Geology

The Ymir Republic 2029: cultural adaptation to the mountains of BC: a typical site for illustration.

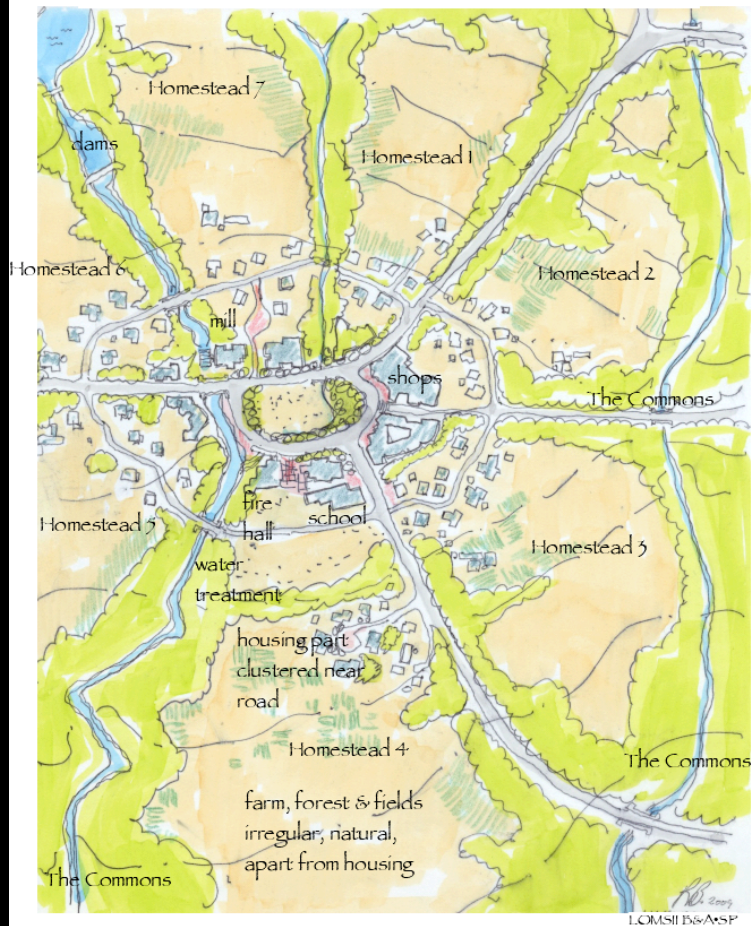


Re-assessing the cultural landscape in post oil economy, with climate change and massive population re-settlement.

B&A Strategic Planning 2010

Ymir Cultural Landscape Potentials

Homestead Clusters to Hamlet Scale in Commons



Post oil hamlets: rural independence.

- Use existing rail, waterway and secondary road systems in place.
- Pre-plan to avoid problem areas, seeking out best siting options (Design with Nature exercise.)
- Interdependence of family and community recognized as safeguard to both and increase success of re-localization.

Avoidance: Not Development

- Conditions of Homestead and hamlets are based on accepting an alternate standard of living, a new lifestyle and transition to a new economy. Land transferable only via family: birth, death & marriage.
- Homesteads are a group ownership model, with community stewardship of a ring of commons land.
- Nuclear family home and ownership independence happens within the framework of the extended family homestead. The family lot is fee simple within a larger land grant. Abandoned land goes back to crown.
- Clustering of homes and hamlets minimizes impact on the land and increases joint security.

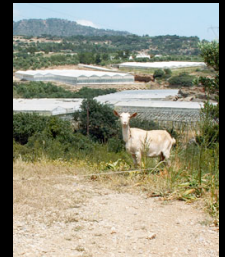
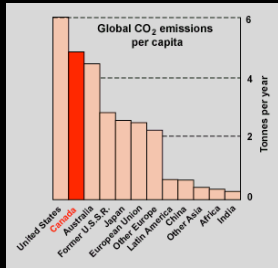
Policy Revolution Needed for Sustainable Community....



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We need to learn from Traditional Communities

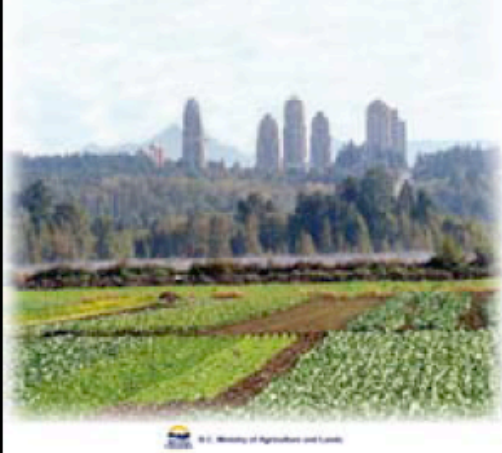


Hills, glass & food.



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Can B.C.'s Farmers Feed Our Growing Population ?



Food Group	B.C. Consumption Million Kg's	B.C. Production Million Kg's	% Self Reliant
Dairy	1080	817	57%
Meat & Alternatives ¹	467	298	64%
Vegetables - Grown in B.C.	764	331	43%
Fruit - Grown in B.C.	172	273	159%
Grain for Food	335	43	14%
Total - Grown in B.C.	2798	1562	56%
Fruit - Not Grown in B.C.	310		
Vegetables - Not Grown in B.C.	3		
Sugar	336		
Total - B.C.	3245	1562	48%

- Bend the old rules to get **more green edge by adding more sustainable density to the urban side** of the boundary.
- Add more green to the urban side, in fact **claw back lost farmlands**.
- Deepen the secured edges and put the **critical wedge pieces into permanent public land trusts**.
- Provide for young farmer leasing, new farms and community garden functions for urban residents to have access to farm and field and forest uses.
- Don't forget to add agro-industrial/**food processing** to urban sides.

Niche farms phase I

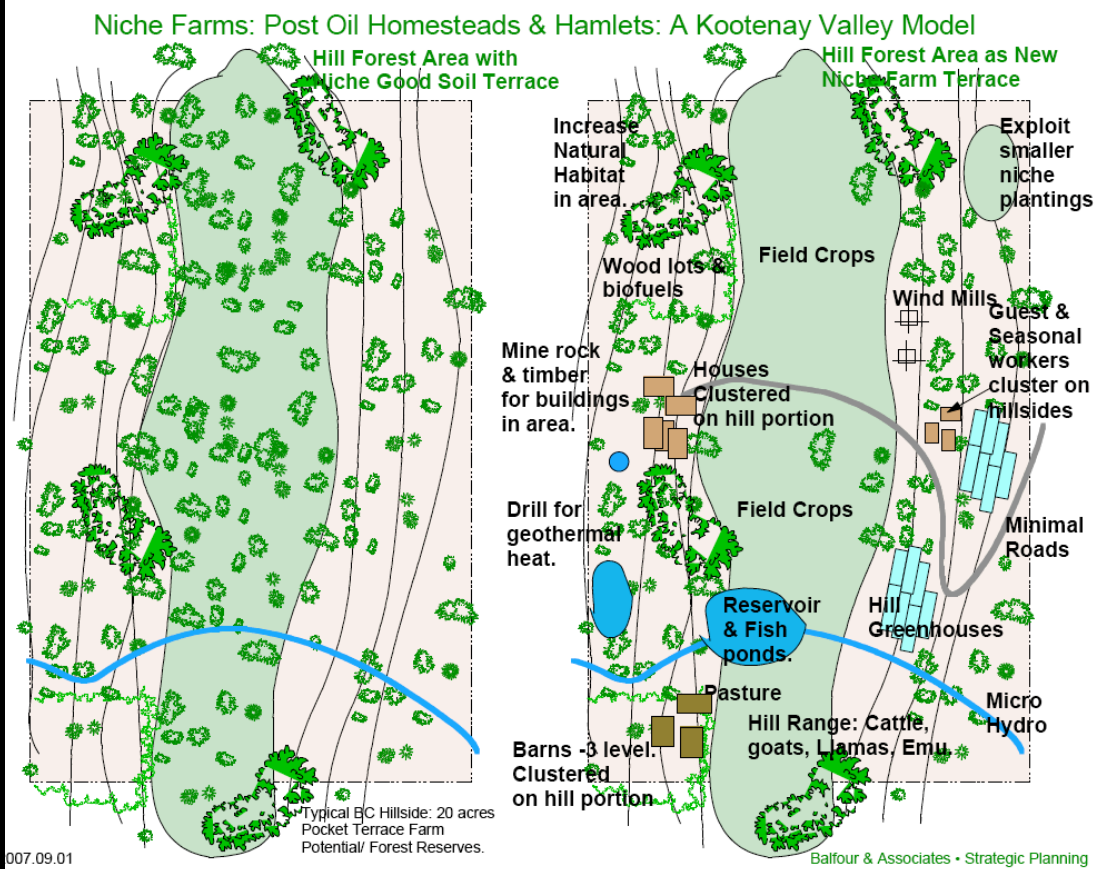
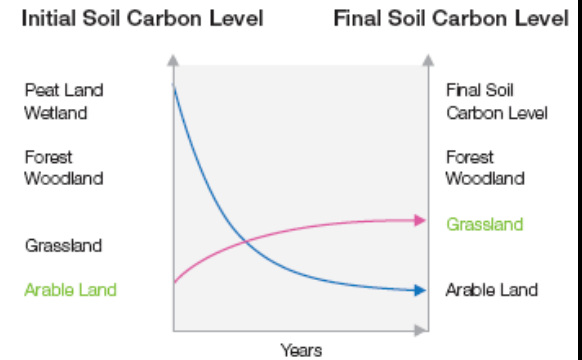


Figure 5. Changes in carbon stock from peat land to arable land and from arable land to grassland.

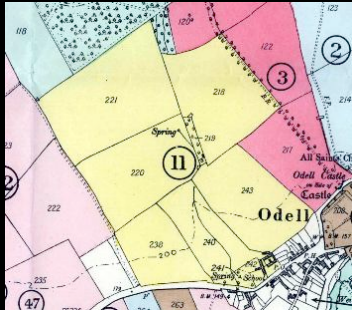


Changes in carbon stock from peat land to arable land (red/dark line) and from arable land to grassland (blue/light line). Each Eco-system and agro-forestry management crop system has a soil carbon equilibrium. Time constant of exponential change depends on climate change but averages around 33 years (see Table 5 for range of values). Source: IPCC 2001.

Bio-char needed for northern lands...

Homestead

**Focused & sharing
community, not
scattered and
defenseless**



transition
design for oil
age first wave..



Old World Lessons?

Visions for Alternate Futures: the Kootenays.
The Farm Hamlet in a Post Oil era.

Pre-oil era: cyclical use of landscape
Old world/third world, make the area work
Japan, build on farmlands, then farm hills
Post Oil era: learn from the Third World, and Tradition
But apply new science and reasoning.



Usual first mistakes: cheap energy, no land conservation stage:
Put housing on flat land, figure out what to do with the hill, not much.

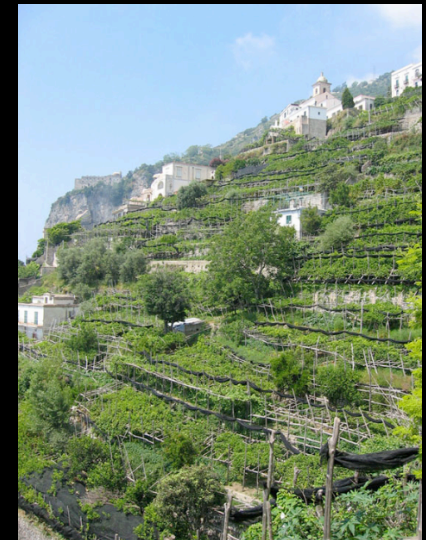
Post oil era: Design with Nature (McHarg)
Learning how to live with a hillside.

recover forest & field
mixed rangeland & woodlot.



SSP3: Nelson 2007 Food Security Conference. Balfour & Associates • Strategic Planning

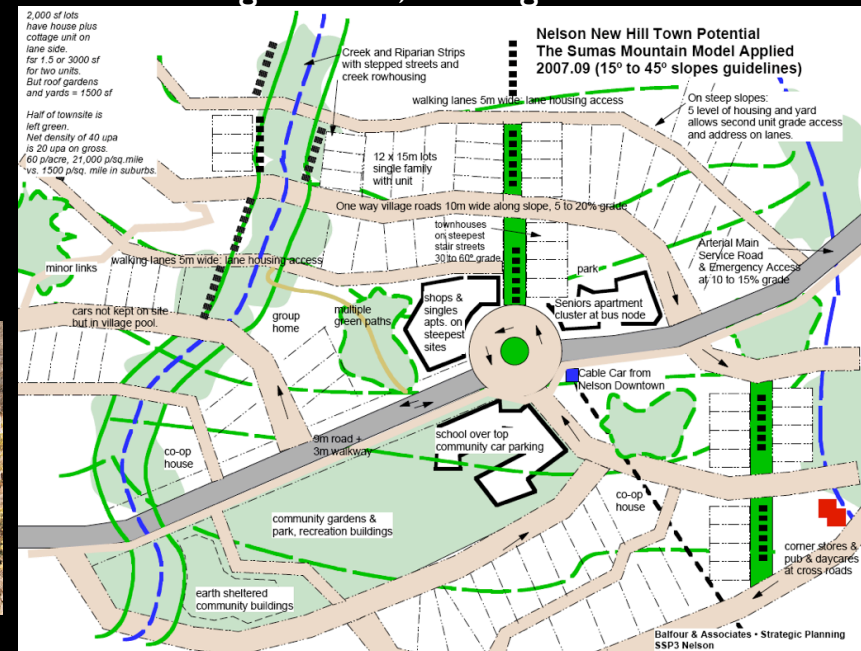
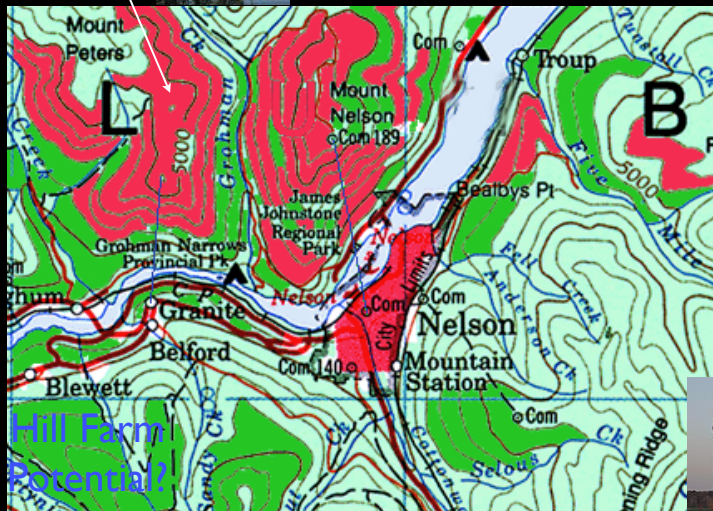
Hills will be farmed.



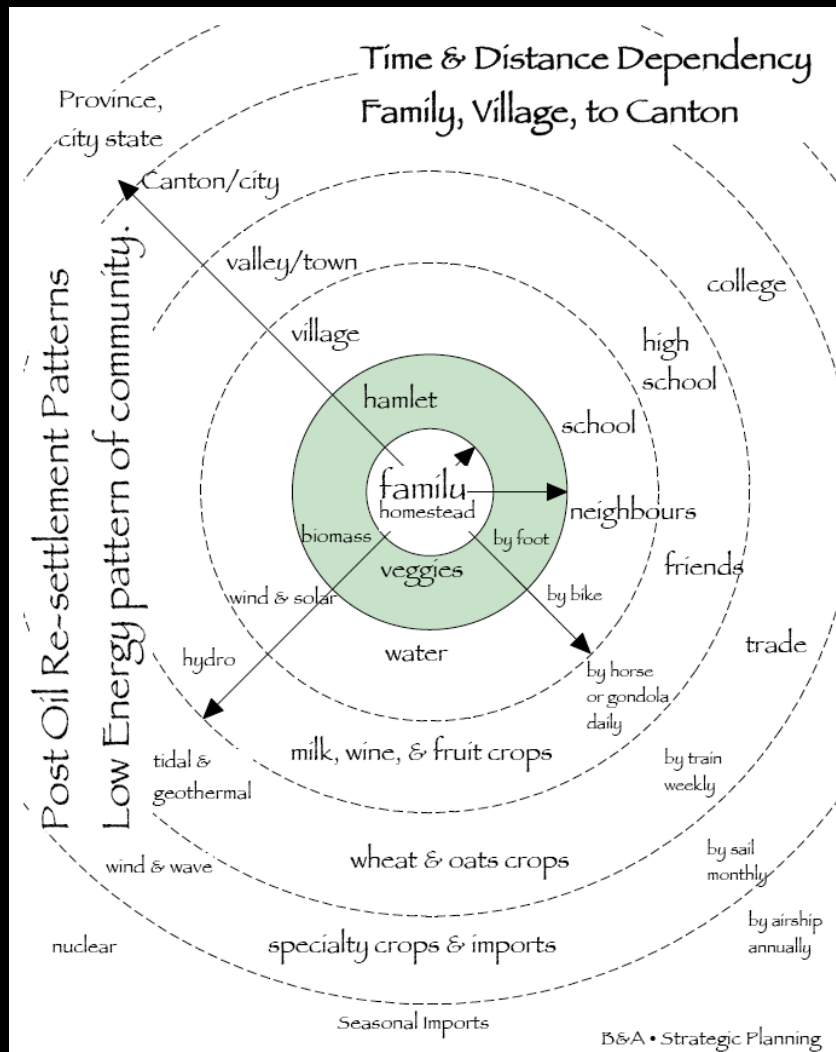
Switzerland: small towns
Dispersed villages
Alpine Farming
Buildings that last
Mountain transport



- Building on Hills, farming the terraces.



- Hill towns & hill farms: Not Business as Usual



The Hierarchy of Community



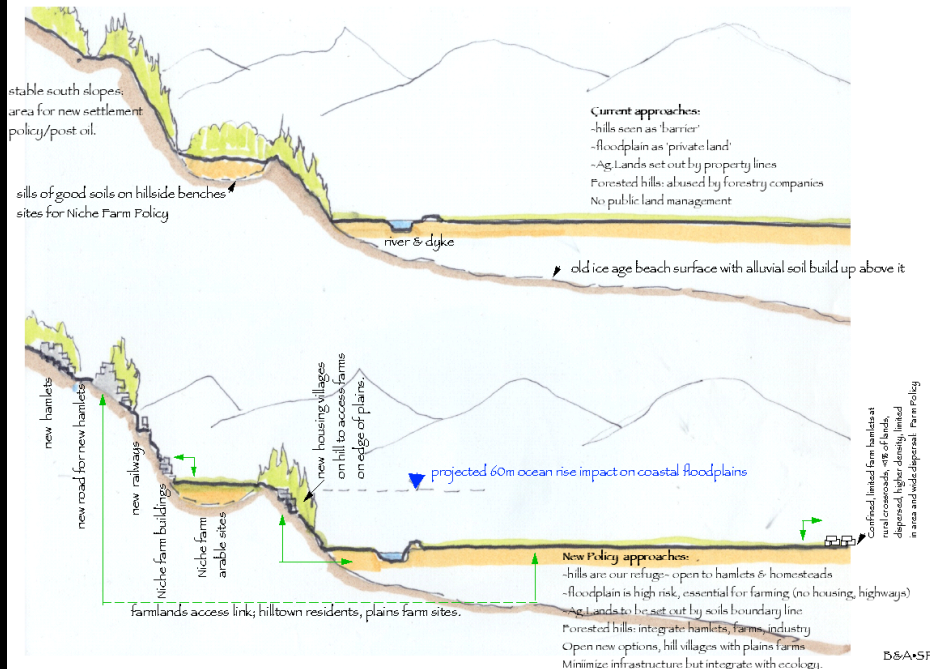
gic Planning

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The Hilltowns Post Oil

Learning from the Old World

Attitudes to Land & Post Oil land conservation.





Network



Defensible Village



Defensible Farms

What new patterns for sustainability?

- Loss of large unsustainable city centres (lean market adjustment)
- Marbleization in the suburbs- reclaiming from past mistakes
- new villages rail oriented and eco-basin managed (traditional)
- new northern tier of towns/new rail systems (visionary)
- new energy harvesting (techno-rescues)
- multiple pathways for maximizing food production
- new industries recycling, reusing, co-operative models (old world lessons.)



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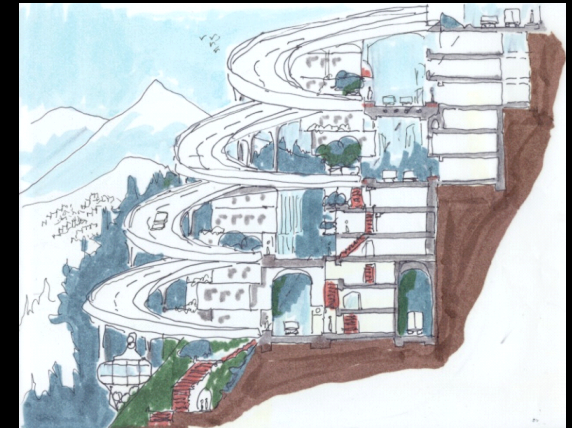
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Planning, Architecture, Urban Design, Transportation

Scale of Solutions



Big footprint options not possible
 Dispersed villages- need autonomy but cooperation
 Housing clustering: energy & community fixes
 Cooperative local economy vital
 Seasonal survival: a new reality
 Geothermal/earth sheltered towns
 New wood & coal energy base
 Extending growing conditions
 Over-wintering - in crops & greenhouses
 New animal husbandry vital
 Self reliance: good insurance.



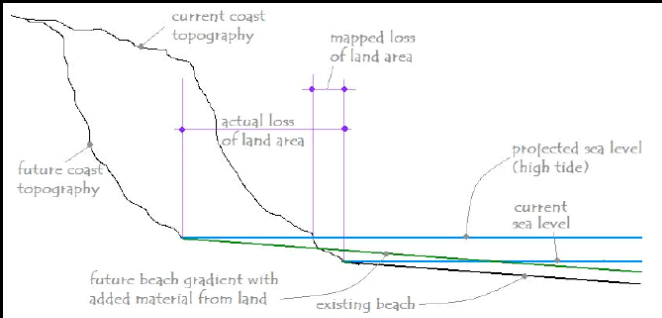
Circle the
 wagons
 but let
 people in?

Old & New: alternate histories give more future options.

????????

Re-localization & Sharing

A local cause of mass migration:
Contingency: 6m
Ocean Rise: Vancouver

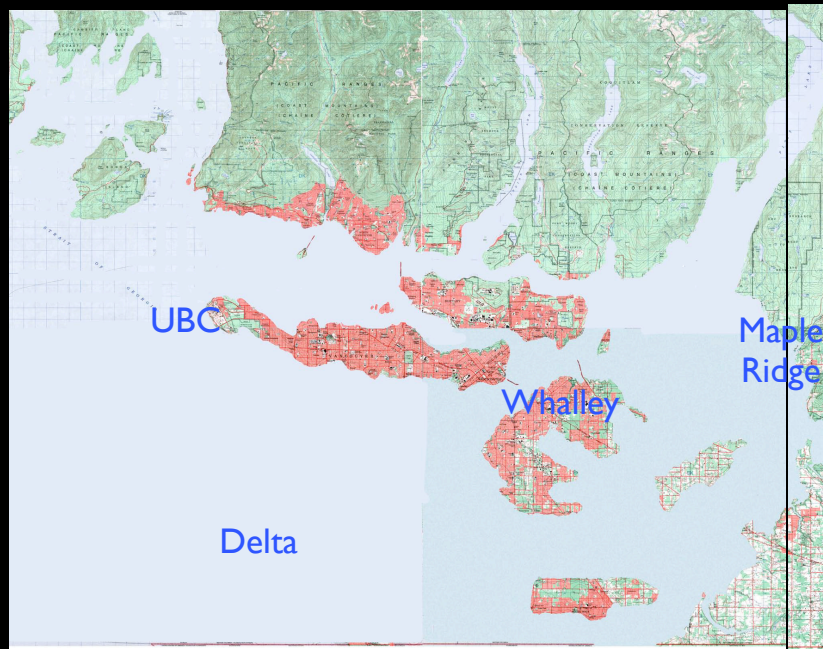


People will only comprehend this SLR problem when their insurance companies no longer want to underwrite their risks. I was trying to explain what happens to steep banks when sea level rises, so I drew this diagram to show how a future high-tide line is actually an extension of the beach slope, and implications for erosion thereof. David Shipway graphic, 2009.



Now a possibility for 2100.

Timing?
uncertain
but
imminent



THE BIG PICTURE

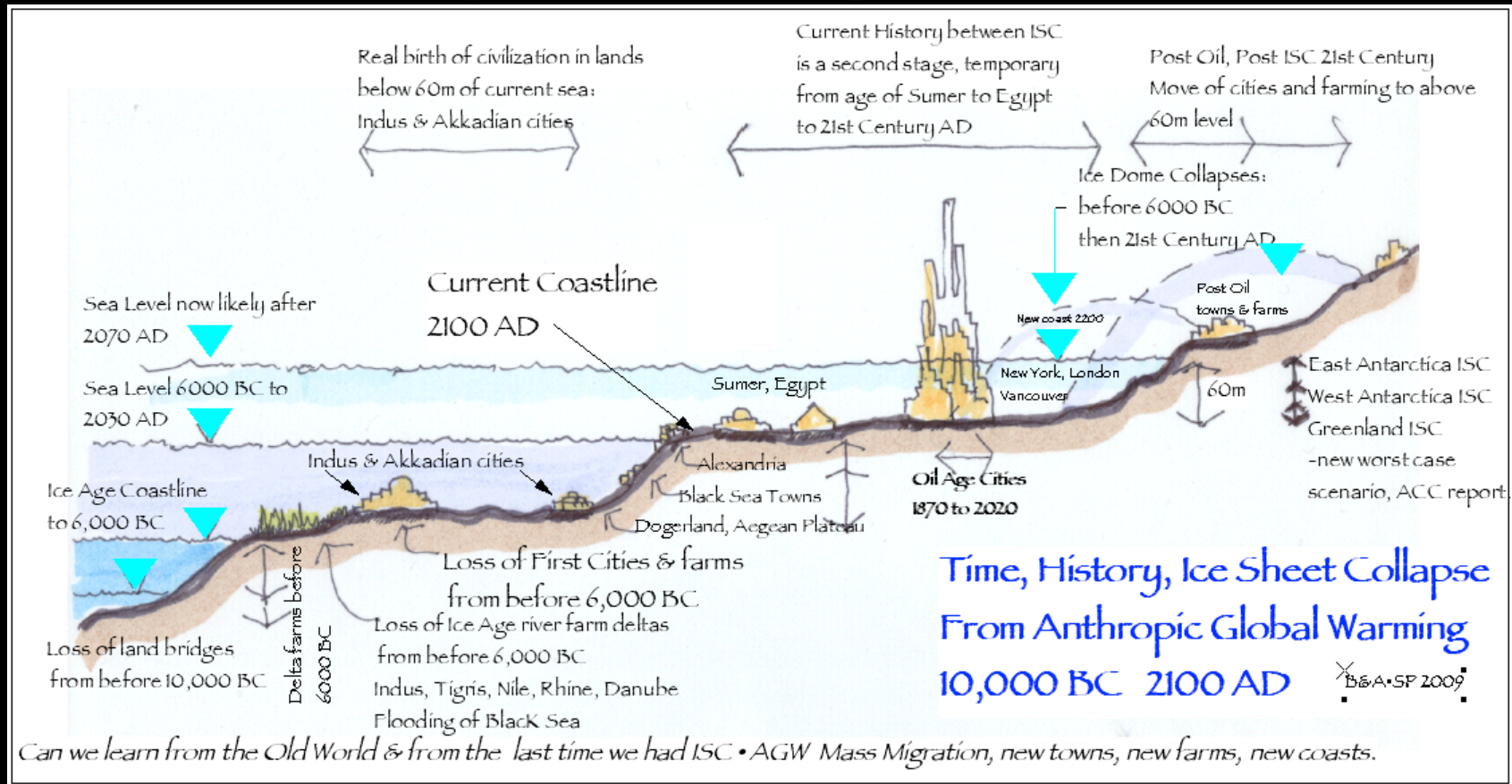
Even if carbon emissions are slashed in the 21st century, and atmospheric CO₂ levels stabilise at between 450 and 1000 parts per million, the temperature will continue to rise for centuries and sea level will continue to rise for millennia. Under the Kyoto Protocol, emissions will continue to rise until the treaty expires in 2012

Legend:

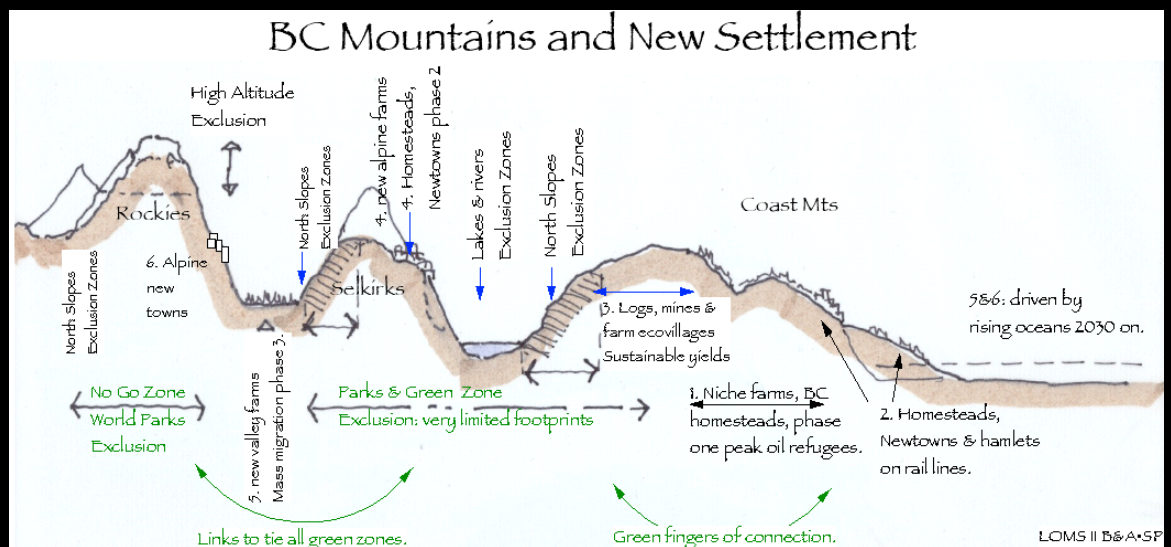
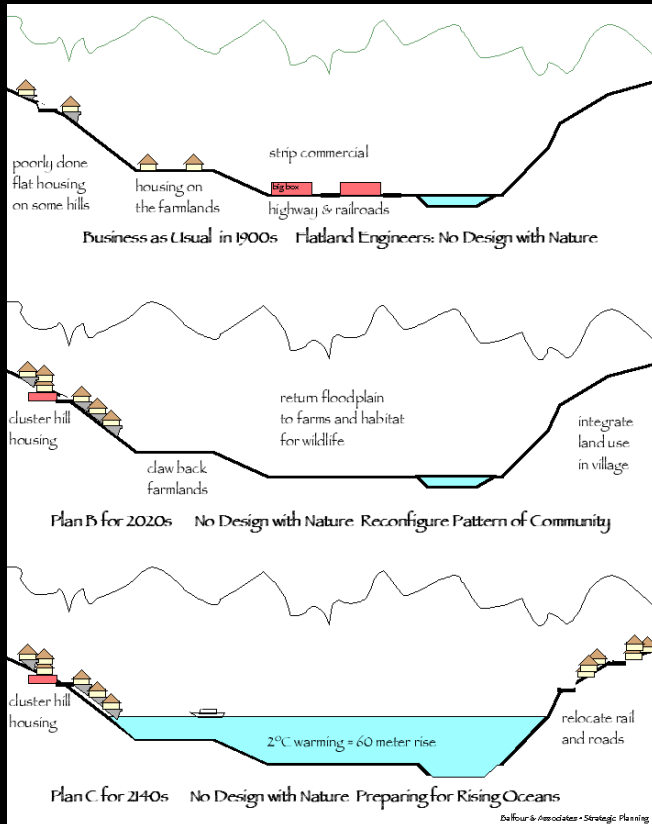
- Sea level rise due to ice melting (several millennia)
- Sea level rise due to thermal expansion (centuries to millennia)
- Temperature stabilisation (a few centuries)
- CO₂ stabilisation (100 - 300 years)
- CO₂ emissions

- New Antarctic on Site researchers, more blue lakes, more melt, more subsurface lubrication= accelerating ice sheets sooner than making corrections graph on the right. Ice Sheet Collapse is possible in one century.

20,000 year history of ocean rise.



BC: mountains as asset, not a barrier.



Part B: Community Policy

- Urban: de-growth needed to make the city survivable: largest cities cannot be sustained or continued as they cannot be serviced from a distance. Or introduction of new urban villages and Green Fingers of farm as Detroit is now restructuring as a post oil city.
- Rural outgrowth of some kind is needed and necessary even for stopgap measure: a doubling of BC farmland beyond the ALR and a new Homestead Act to make this happen.

...unavoidable steps in change to adapt.

CANADA

Canton Reform

Rural,

Urban &

Village Policies

- pro-farm policies
- less taxation
- favour family/village scale
- decentralize farming
- lessen monocultures
- traditional modes/energy

- aid in urban triage
- recover good soils lost
- favour family/village scale
- make urban farming
- aid marbelization/ green fingers
- traditional modes/energy

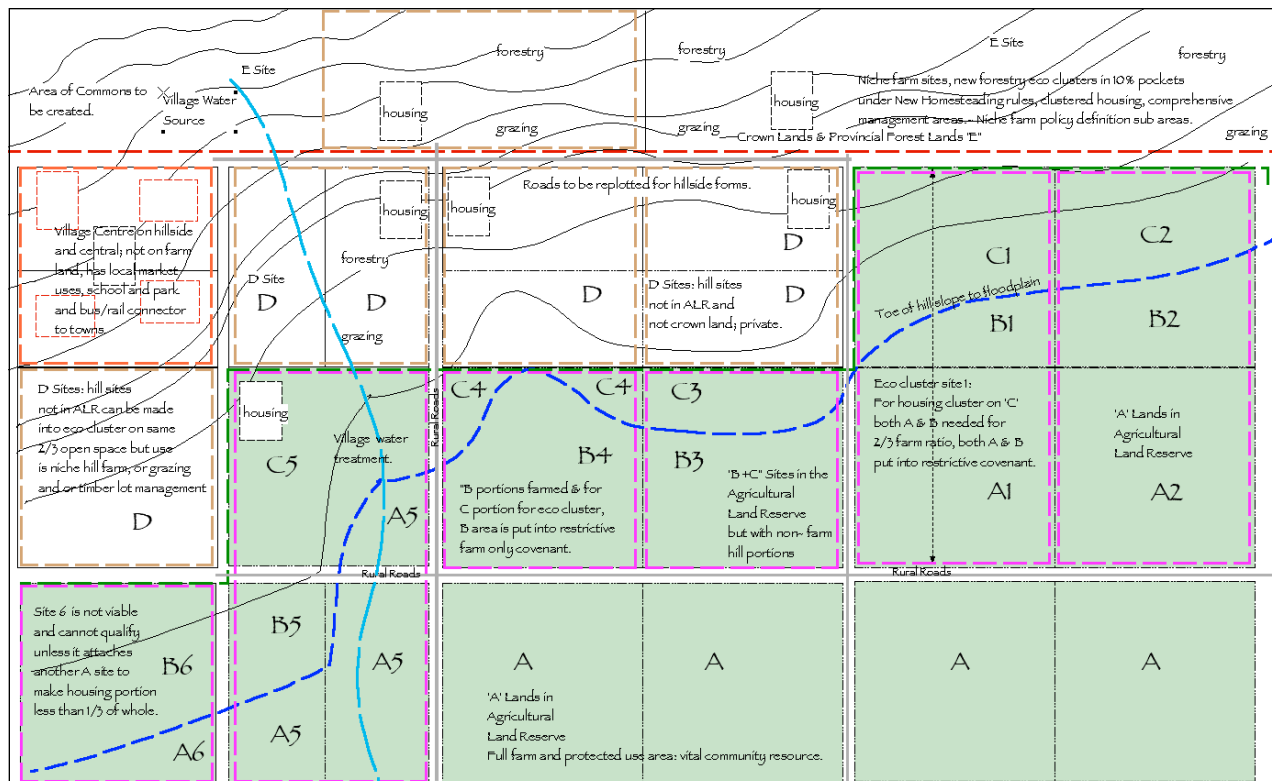
- new village pattern support/ rail transport
- aid localization moves
- favour family/village scale
- traditional industry!
- maintain communications
- traditional transport





The mountains of BC are not a barrier but Our Asset

- Look at any city or metro area like the leader of a Rescue. The current lifestyle is not going to last. Be prepared to act now.
- The marshaling of resources, the conservation of land and energy, food and water are paramount. Civilization is at risk.
- Urban Triage and marbelization of the landscape are events and solutions which permit effective change for a Transition Town.
- The first step for community adjustment is to raise public consciousness about the need for community resilience.



Eco Cluster Housing and Farming: Differential Policy to deal with real variation of conditions: Access to Vital Lands for Sustainability, Post Oil Economy in BC

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Rick, I am not sure if you can use info like this in your designs, but it came up today. Space put aside for outbuildings, and lots of them. Repair a machine, dry wood, store feed and straw, dry bamboo, outdoor work or meeting space etc. The first thing I did here was put up outbuildings and mark out other areas for storing sawwood, woodchips and other mulch materials. These need to be somewhere easy to dump off and central enough to be useful without strain. In some designs, this stuff is stuck off in the fringes which is a waste of human power to get and use them. By the way, besides one half of the roof on the big greenhouse, and some rolled roofing on the potato shed, the rest of the materials were scrounged. And that is another space that needs to be available - where to put scrounged materials while they are being incorporated into housing etc. Don't even know if this is where you were going but it really is missing in design of rustic living. Robin Wessler, Sunshine Coast

Access to land, a new urgency.
Models for sharing land access.
Farms access with home component on the hills.



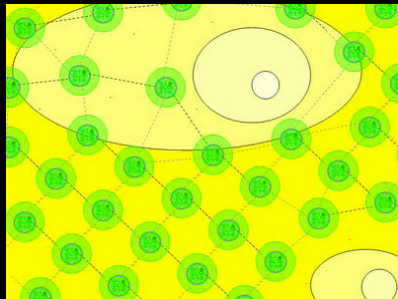
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2013-2014 BC Association of Architects • 100th Anniversary • 100th Anniversary • 100th Anniversary • 100th Anniversary

Re-Learning Old World Lessons



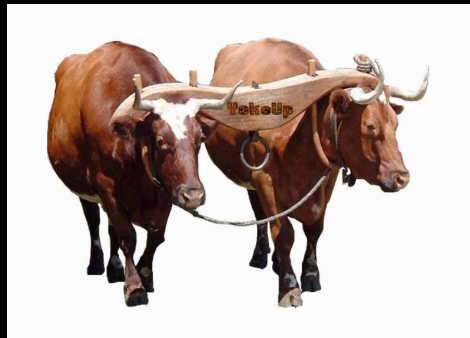
Town Edge: not
more suburbs but
new Village, farm &
forest



"A Theory of Power", by Jeff Vail. An exploration of the development and structure of hierarchy and empire through political anthropology, economic theory, evolutionary ontogeny and developmental psychology.

cbc.ca/doczone 2010

NO transport
NO tractor
NO fertilizers?
NO pesticides.



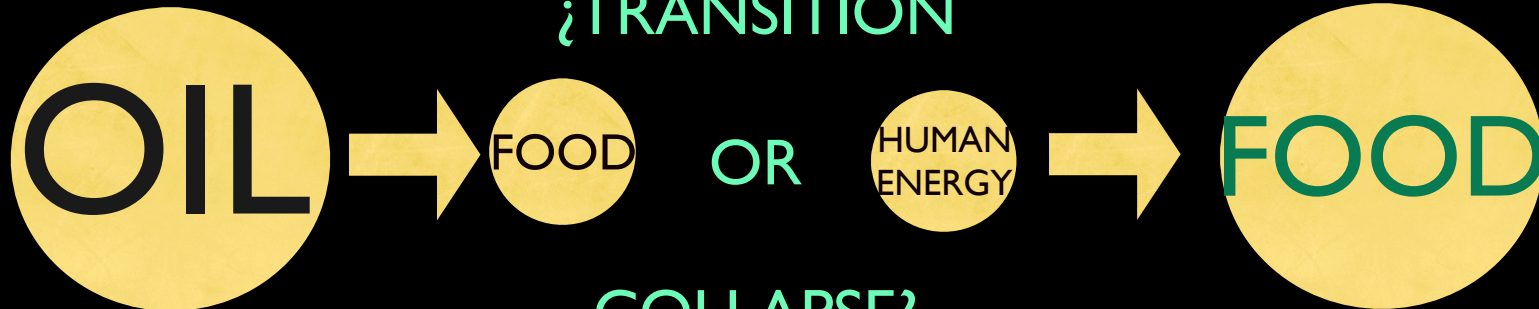
The payback is ONE
CALORIE OF HUMAN
MUSCLE INPUT YIELDS
6 CALORIES OF
FOOD.

ps: you actually have no **choice** on this one...

Graphically.....

What you take for granted. Age of the Entitled....

Pre-Oil Age



COLLAPSE?

people time lag

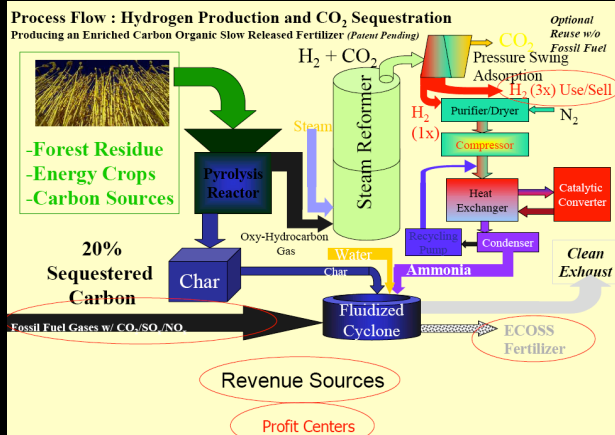
Oil Age

People in the the Petri Dish

Post-Oil Age

Enlightened but sweaty...

The diagram illustrates a comprehensive biomass cycle. At the top, a sun and clouds are shown. A large blue arrow labeled "Carbon Dioxide" points from the right side (industrial/energy sector) back to the left side (biomass production). On the left, a brown arrow labeled "Biomass" points from the land back to the top. The central area shows "New Biomass Crops" and "Conventional Biomass" growing in fields. To the right, a large industrial facility is labeled "Fuel/Power/Heat and New Bioproducts". Below this, "Agricultural Residues" are shown. A "Recycling" loop connects the industrial sector back to the biomass production area. In the foreground, a town is shown with "Products" being distributed. To the left of the town, a facility is labeled "Wood Products and Energy or Food/Feed Chemicals". A "Mineral Recycle" loop connects this facility back to the biomass production area. A "Fuel Energy" arrow points from the town area back to the biomass production area. The entire cycle is set against a backdrop of a landscape with trees, fields, and a body of water.



We began to investigate the use of the material as a soil amendment and nutrient carrier after employees mentioned that a mound of char, used for start-up operations was covered in vegetation and more specifically turnips. Someone had tossed some turnip seeds, on the two year old, chest high, char pile. It was only char with no soil, yet on plants completely covered the mound. The plants appeared healthy with roots that enveloped each char particle. The turnips, unfortunately could not be inspected as they already had been eaten, but it was reported they were "Good!".



Terra Preta refers to black high carbon (9%) earth-like anthropogenic soil with enhanced fertility due to high levels of soil organic matter (SOM) and nutrients such as nitrogen, phosphorus, potassium, and calcium. Terra Preta soils occur in small patches averaging 20 ha. These man made soils are found in the Brazilian Amazon basin, also in Western Africa and in the savannas of South Africa. C14 dating the sites back to between 800 BC and 500 AD. Terra Preta soils are very popular with the local farmers and are used especially to produce cash crops such as papaya and mango, which grow about three times as rapid as on surrounding infertile soils.

(Map reprinted by permission: Steiner, 2002)

Terra Preta refers to black high carbon (9%) earth-like anthropogenic soil with enhanced fertility due to high levels of soil organic matter (SOM) and nutrients such as nitrogen, phosphorus, potassium, and calcium. Terra Preta soils occur in small patches averaging 20 ha. These man made soils are found in the Brazilian Amazon basin, also in Western Africa and in the savannas of South Africa. C14 dating the sites back to between 800 BC and 500 AD. Terra Preta soils are very popular with the local farmers and are used especially to produce cash crops such as papaya and mango, which grow about three times as rapid as on surrounding infertile soils.

(Map reprinted by permission: Steiner, 2002)

- This solution allows agricultural and forestry to join in a mutually beneficial relationship with renewable hydrogen producers and fossil fuel users. This synergy supports the restoration of our soils and represents limitless carbon storage options.
- Hydrogen with carbon co-products allow “capture and utilize” technology to help reduce energy costs

Hydrogen from Biomass Pyrolysis: Integrated Co-Products and Services

Biorefining Videoconference
(June 17, 2004)

Danny Day, Eprida

Resettlement- rethinking patterns

oil age farm
as sprawl
pattern

oil age farm
into suburb
pattern



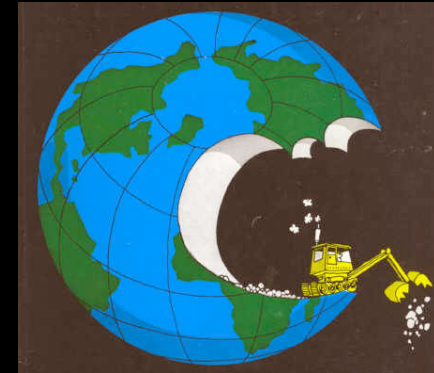
farm into
hamlet option
pattern for
sustainable
community:
the area
around this is
farm &
commons.
Served by rail.



SSP Lexington Kentucky example.

Governance Impacts

- End of cheap energy will tend to collapse large governments as well as globalized corporations.
- Schumachers Small is Beautiful, or Buddhist Economics become the shorthand for cooperative and relocalized economies. In this, the four Rocky Mountain Cantons have a leading edge. So far.....



Canton= Eco-basin Management

- Direct Democracy
- Stewardship of the Ecological Basin, or 'tribal land'.
- New thinking must use land inventory analysis to avoid and protect the vital parts of the commons, or it is all for naught.
- Cooperative society, the sharing of resources starting with water, land and food it essential to survival and sustainability.
- Social capital is vital component of nurturing of culture.



Policy Revolution Needed

- 1. No go zones, limited access and shared use of the commons.
- 2. Resource inventory and analysis requires stewardship policies.



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Water



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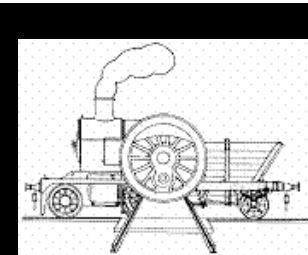
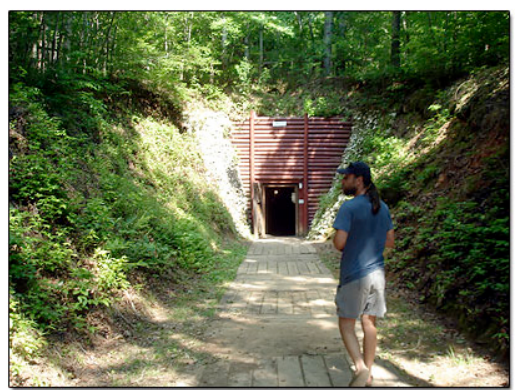
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Planning, Architecture, Urban Design, Transportation

Land & Food



Cultural Survival Issues: You.
Careful resource
extraction- this also we
have to do locally

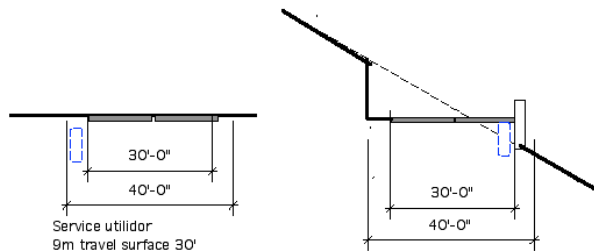


Education: we re-learn
old world plus new world
skills quickly, to share
what we can rescue

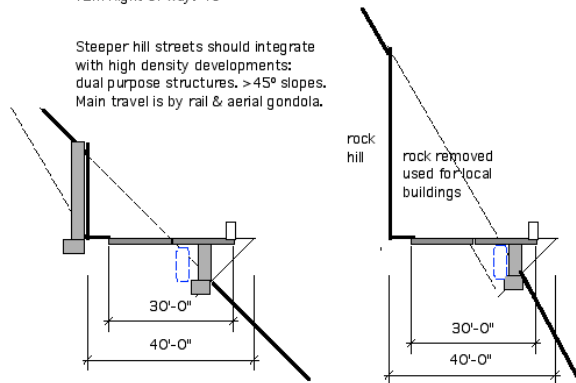
Rail & River & Mountain Transport

Hillside Arterials & Collector Streets: Canton Highways

No access but for local streets.



Steeper hill streets should integrate with high density developments: dual purpose structures. > 45° slopes. Main travel is by rail & aerial gondola.



Living on Mountain Slopes II: Development Bylaws

B&A • SP



Old roads are just fine...



there is no need for the new ones.



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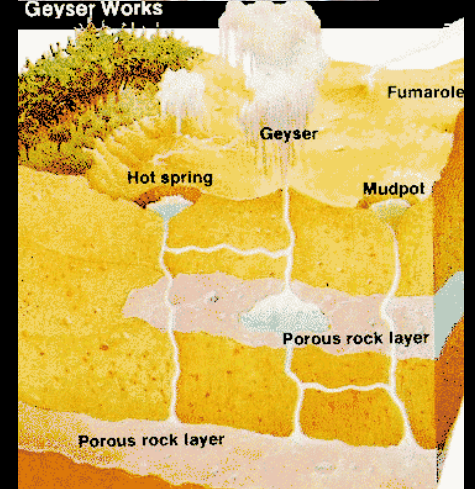
Geothermal & Hydro Capital



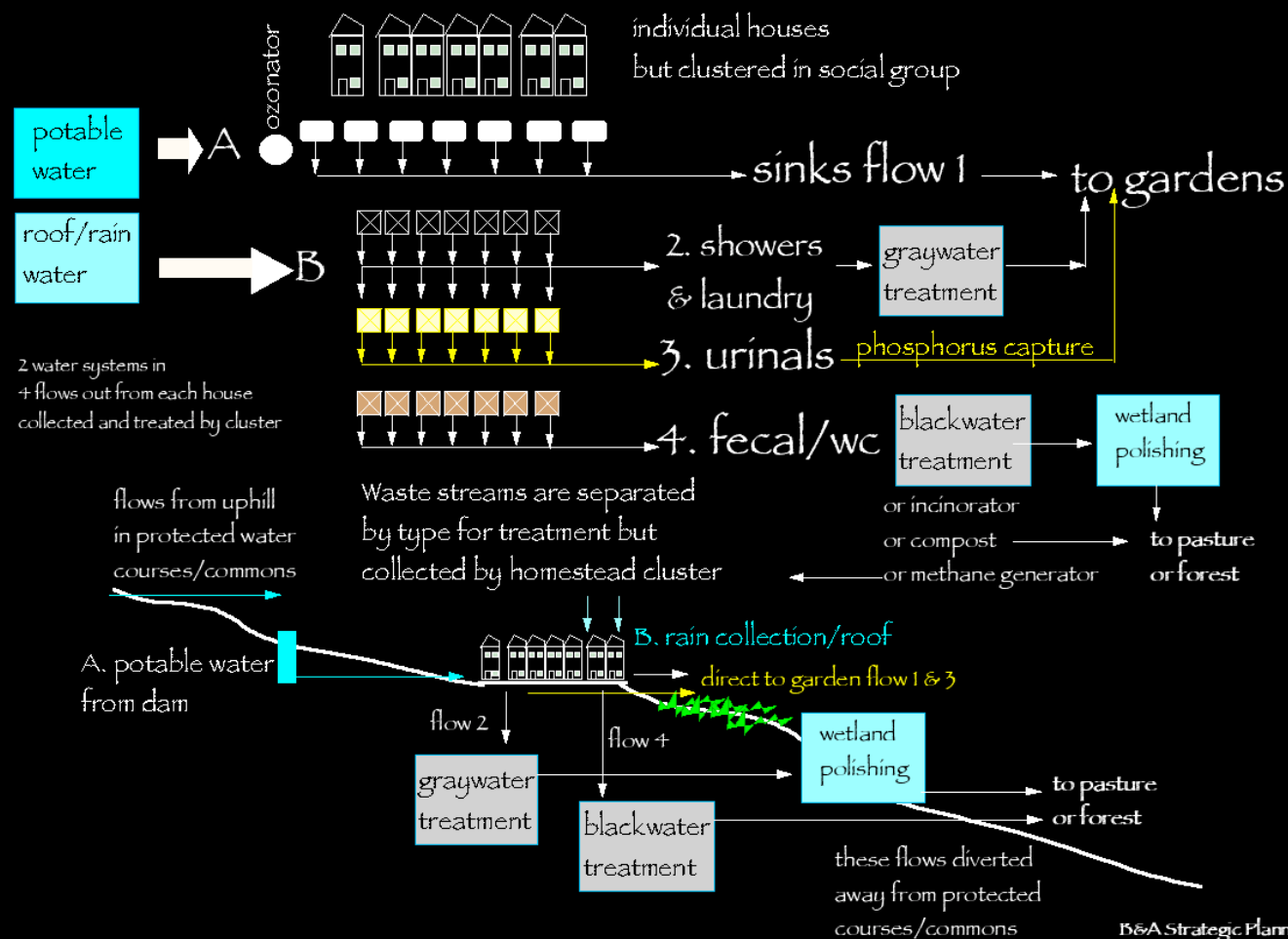
BC has the untapped mountains energy.



- Water and the sharing of it is central to food, land, energy, survival.



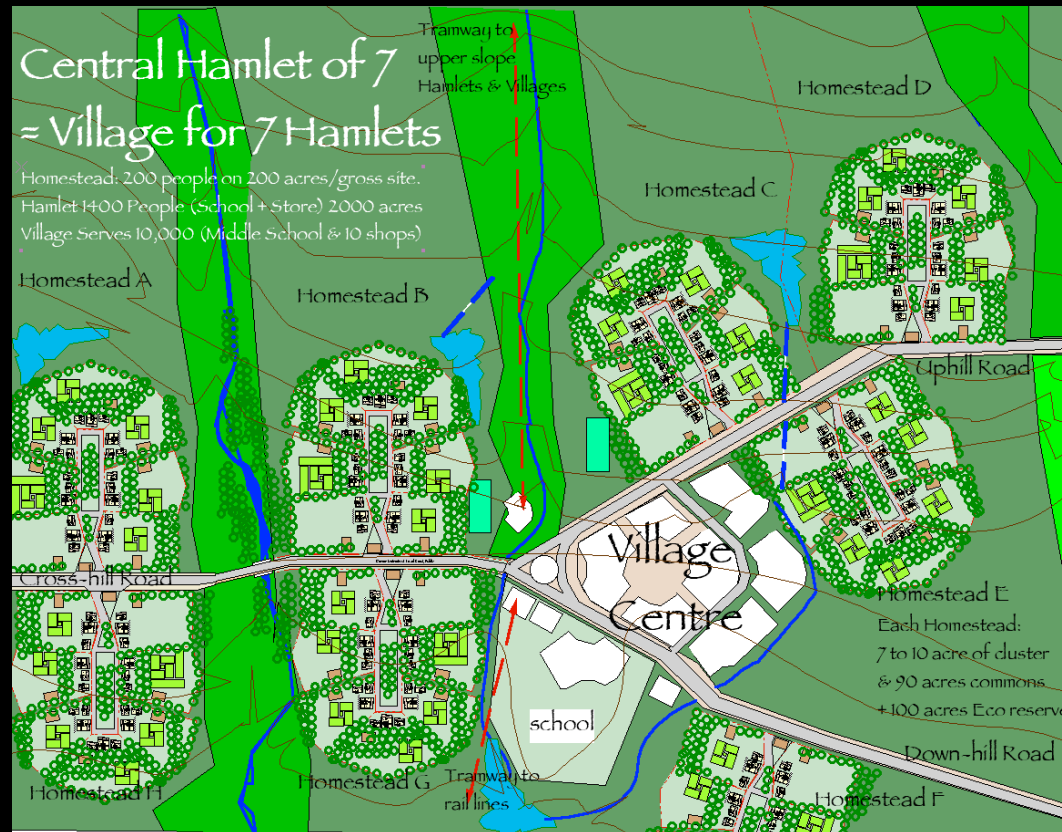
Water & Waste Management: Post Oil Hamlets and Homesteads



Waste Not, Water Protection

In the 1990s BC permitted new waste treatment options between the old septic tank and the massive city sewer solutions: new small scale units allow for new ways of working with the land. This is a further evolution of the concept adapted for post oil settlements of hamlets, homesteads, mountain villages and what towns remain supportable in a Rhizome pattern of settlement.

Rhizome Community



- Resisting hierarchical community

Hamlets



British Columbia New Homestead Act 2011

Application to Register Perpetual Settlement In the Name of a Family Trust.

Family Making Application: _____
 Citizenship (time of application) _____ Other citizenship held _____
 Name of Family Trustee and Spouse _____
 Name of First Trustee on behalf of Family Trust _____
 Names of Fellow Trusts in this application: (Minimum of 3, Maximum of 10, 2/3 of sites need user ID)
 Lot 1) _____ Lot 2) _____
 Lot 3) _____ Lot 4) _____
 Lot 5) _____ Lot 6) _____
 Lot 7) _____ Lot 8) _____
 Lot 9) _____ Lot 10) _____

Legal Description: (sample description).
 Lot ____ of Homestead Cooperative Farm Site (HCFS) ____ of Hamlet ____
 Of Village District: Coyote Creek, Township: Barriere, City Region: Kamloops
 Of Shuswap Canton, Province of British Columbia.

Acting on behalf of _____ Family Trust, our family agrees to the terms and conditions of title to a) family lot in fee simple, a site of one acre, b) joint ownership of the farm homestead lands collectively held and managed (nominal 100 acres) and joint stewardship and protection of the adjoining ecological reserves (minimum 100 acres- see reverse side for list of rights and responsibilities.) Tenure of ownership is in perpetuity by a Family Trust.

Conditions of Land Grant:

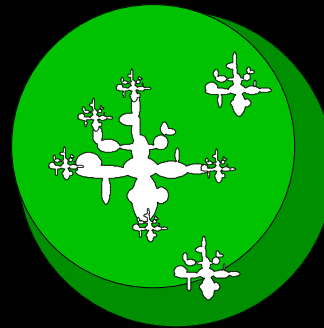
- This land is not to be sold, rented out for others to use for more than 3 years every decade.
- Occupancy of the land must be established within 3 years of this application and maintained by direct members of the family. (Stewardship Clause).
- If for any reason the site becomes unoccupied for a period longer than 3 years, it reverts to Crown ownership for granting to others. In such cases there is no compensation for improvements. (Anti-speculation clause)

Signed _____ Government Agent _____
 Witness _____ Witness _____
 Dated _____

Application (Processing) Fee: \$1000 per home-site within the Homestead. There is no other fee for cost of land. Only open to citizens of Canada, including via inheritance.
 Unserviced Hamlets: Main public road to homestead site, water and other services are responsibility of the homestead family. Assistance in establishing Hamlet water and waste treatment will be by consultation only, with no capital assistance. Standards of Public Health still must be maintained. Collection of taxes for road upkeep, any local services and school funding will be through the Canton Government. Hamlet local services are encouraged but designed and controlled by the local users, to fit the context of each site, hamlet and ecological basin.

Application to Register Perpetual Settlement in the Name of a Family Trust Page 1 of 2

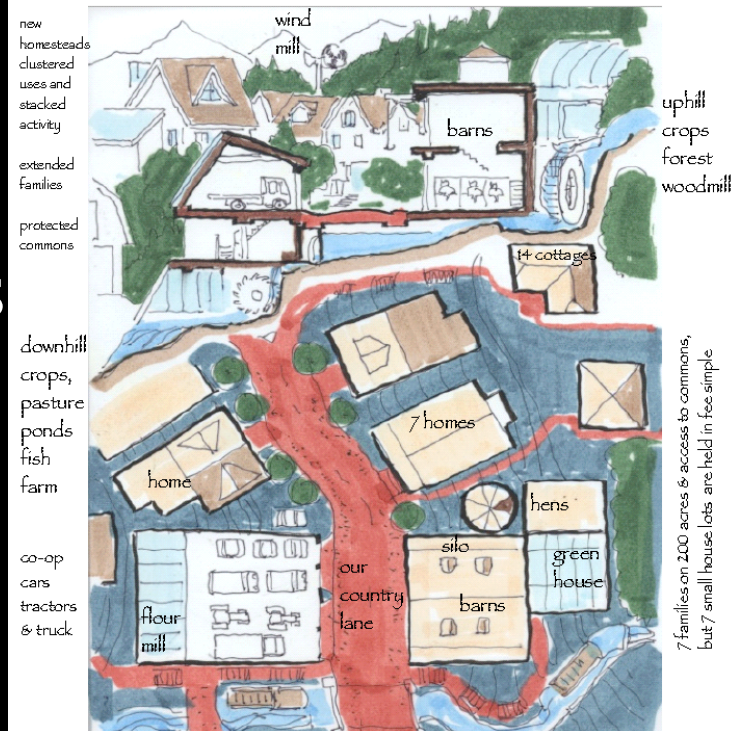
Hamlet model & homesteads



Homestead fractals
in commons

- A family and cultural survival economic mechanism
- Learning from the Old World models. (World Urban Forum)

The Homestead Cluster Patterns



Rick, I am not sure if you can use info like this in your designs, but it came up today. Space put aside for outbuildings, and lots of them. Repair a machine, dry wood, store feed and straw, dry bamboo, outdoor work or meeting space etc. The first thing I did here was put up outbuildings and mark out other areas for storing sawed, woodchips and other mulch materials. These need to be somewhere easy to dump off and central enough to be useful without strain. In some designs, this stuff is stuck off in the fringes which is a waste of human power to get and use them.
 By the way, besides one half of the roof on the big greenhouse, and some rolled roofing on the potato shed, the rest of the materials were scrounged. And that is another space that needs to be available - where to put scrounged materials while they are being incorporated into housing etc. Don't even know if this is where you were going but it really is missing in design of rustic living. Robin Wheeler, Sunshine Coast

Impacts pushing Homesteads

- Post Oil: Death of suburbs, end of Alpha Cities, rural out migration.
- Rural migration without knowledge of design with nature will only destroy the new rural settlement areas in the same way as suburbs.
- Design with Nature plus Limits on Growth plus Rhizome community cluster principles maintain the viability of the commons and provides social reinforcement, ecological and economic homestead and hamlet servicing properly integrated with the environment.
- Oil age inefficient and costly servicing is not affordable nor appropriate to safeguarding the commons.

Table 1. Comparisons of developed and developing country consumption of commercial energy [10^{12} kcal] and the percent of the population engaged in agriculture [Pimentel 2001].

Country	Solid fuel	Liquid fuel	Natural Gas	Hydro & nuclear energy	Total energy	Energy use per person [10^6 kcal]	Population in agriculture (%)
USA	4,300	7,775	4,475	1825	18,375	76.6	2.6
Brazil	57	383	19	132	591	4.1	37
India	439	295	18	104	856	1.1	62
Kenya	1	10	0	1.6	12	0.6	75



Impact on Land, water, ...



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Family Engineering & land care.



global impacts summary 2010

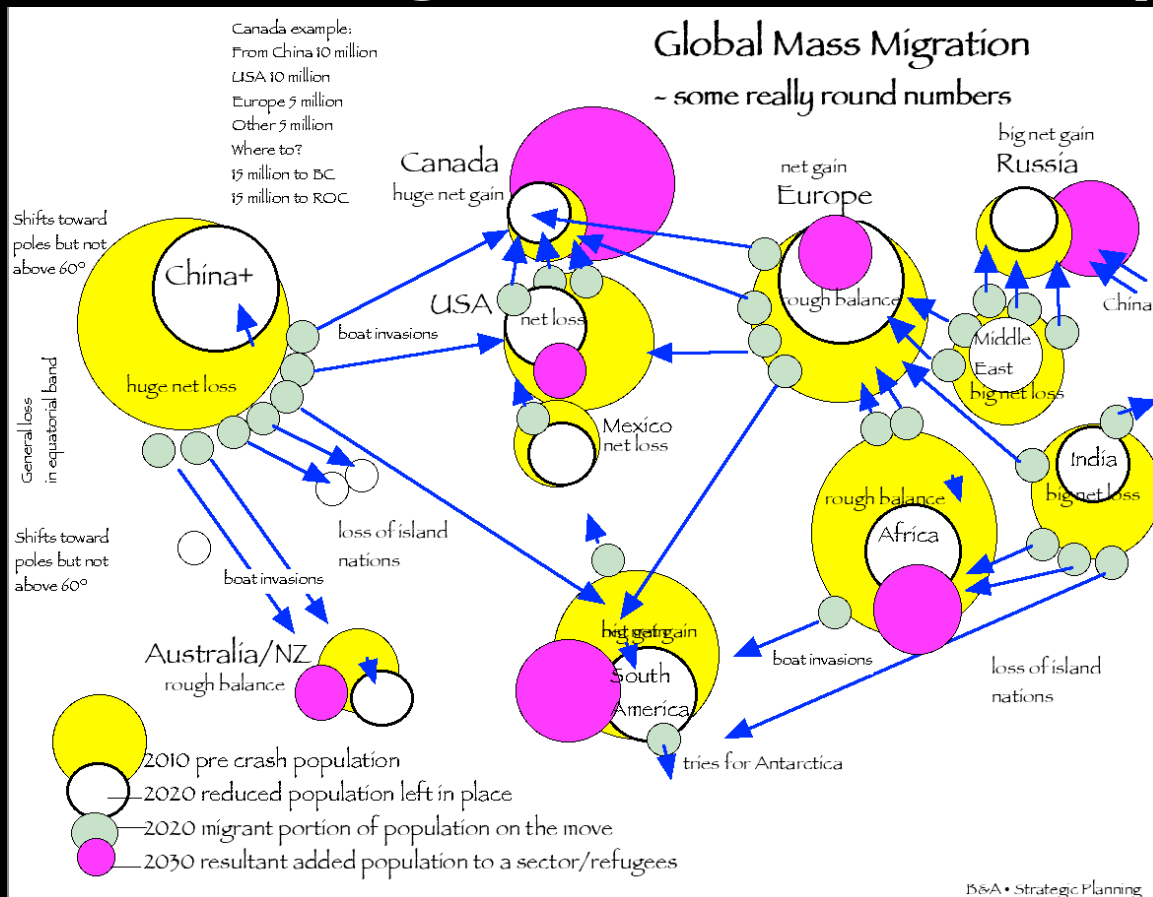
- Too large a population for one planet and modern consumption makes it all much much worse. Downshifting is part of solution.
- Burn out of energy supplies, loss of land and water triggers failure of natural systems and climate change becomes erratic.
- Confining people to unsustainable cities will fail. (Or succeed as Casino Gulags) Results: migration of oil and climate refugees.
- Migration to most verdant and stable areas means we need to plan for these changes in a proactive manner so as to not yet again destroy yet another range of habitat. (Integration with nature.)



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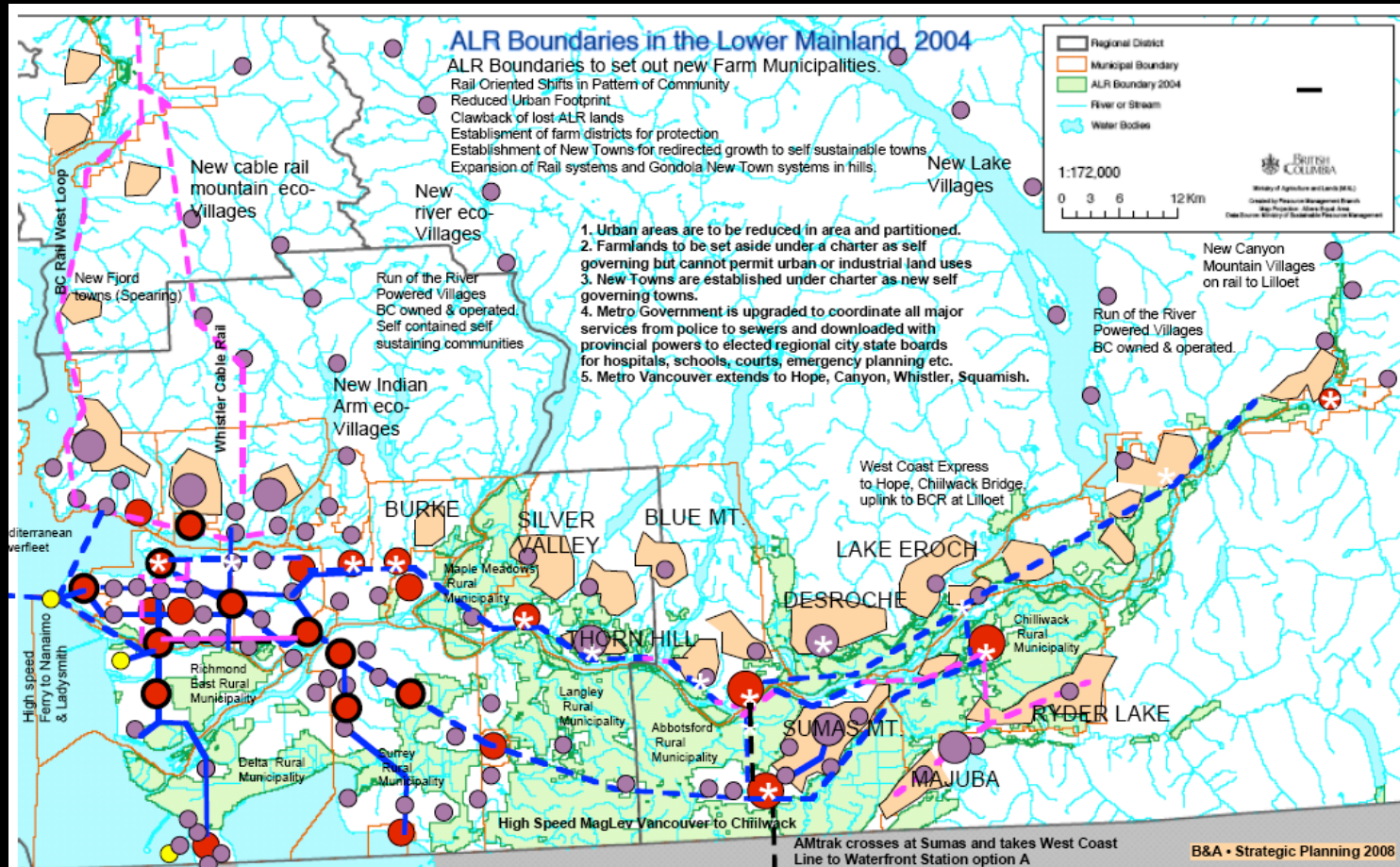
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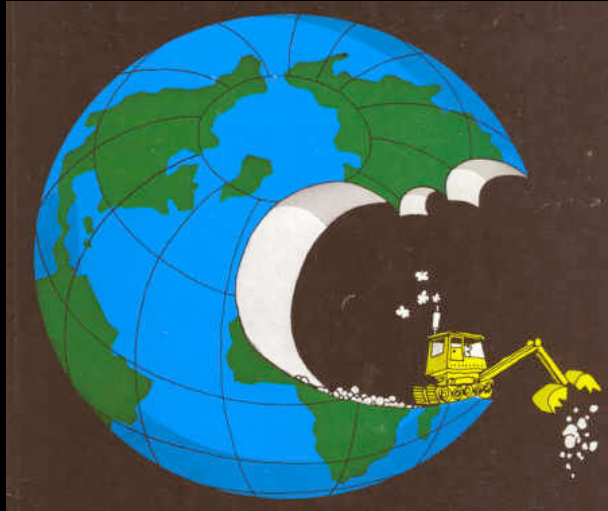
Mass migration summary



- Energy & Climate Changes will create movement of modern refugees but populations in source countries will experience a decline from lack of resources, fighting & social unrest due to shortages.
- Many just will not finish the trip across oceans or deserts.
- Big populations likely to suffer greatest reductions.
- Empty or desirable areas will see proportionally larger population inflow, putting these areas most at new risk.

Rethinking Vancouver, quickly.





Not a development Plan.

- Planning for large populations is not about advocating growth or development, it is about looking for sustainable new pattern language & learning from the Old World as oil age dependent Alpha Cities and suburbs crumble & nature restores green fingers of sustainable field & forest.
- Conversely, migration to rural areas also needs to use green finger patterns & Rhizome hamlets on rail and river to return us to a balance with nature.

	Population @ Startup	Population @ Limits	Farm Portion in acres	Farm as portion of community	Green as portion of community	Population power of 7	Population power of 7+	Land as power of 10 in acres	Community Area in Square Miles	Radius of Travel in miles	Mode of Travel	Community Density Gross ppa	Community Density Net Site ppa
Family	4	30	1+9 acres	100	0.5	7	30	10 acres			foot	3	30
Homestead	30	200	100	0.5	0.5	49	350	200	0.3		foot	1.75	
Farm Cluster	200	1400	700	0.35	0.65	350	2500	2000	3.5	1	bike	1.25	
Hamlet	1400	10,000	4900	0.245	0.755	2500	17,500	20000	35	3	bike	0.875	
Town	10,000	70,000	35,000	0.175	0.825	17,500	122,500	200,000	350	9	train/gondola	0.6125	
City	70,000	490,000	250,000	0.125	0.875	122,500	857,500	2,000,000	3500	30	train/gondola	0.00042875	
Canton	500,000	3,500,000	1,750,000	0.0875	0.9125	857,500	6,300,000	20,000,000	35,000	90	train/boat	0.315	
BC	3,500,000	24,500,000	12,250,000	0.06125	0.93875	6,300,000	42,000,000	200,000,000	364,764	300	train/boat	0.21	



Floods under Antarctic ice speed glaciers into sea: study

(AFP) – Nov 16, 2008

PARIS (AFP) — Scientists unveiled Sunday the first direct evidence that massive floods deep below Antarctica's ice cover are accelerating the flow of glaciers into the sea.

How quickly these huge bodies of ice slide off the Antarctic and Greenland land masses into the ocean help determine the speed at which sea levels rise.

The stakes are enormous: an increase measured in tens of centimetres (inches) could wreak havoc for hundreds of millions of people living in low-lying deltas and island nations around the world.

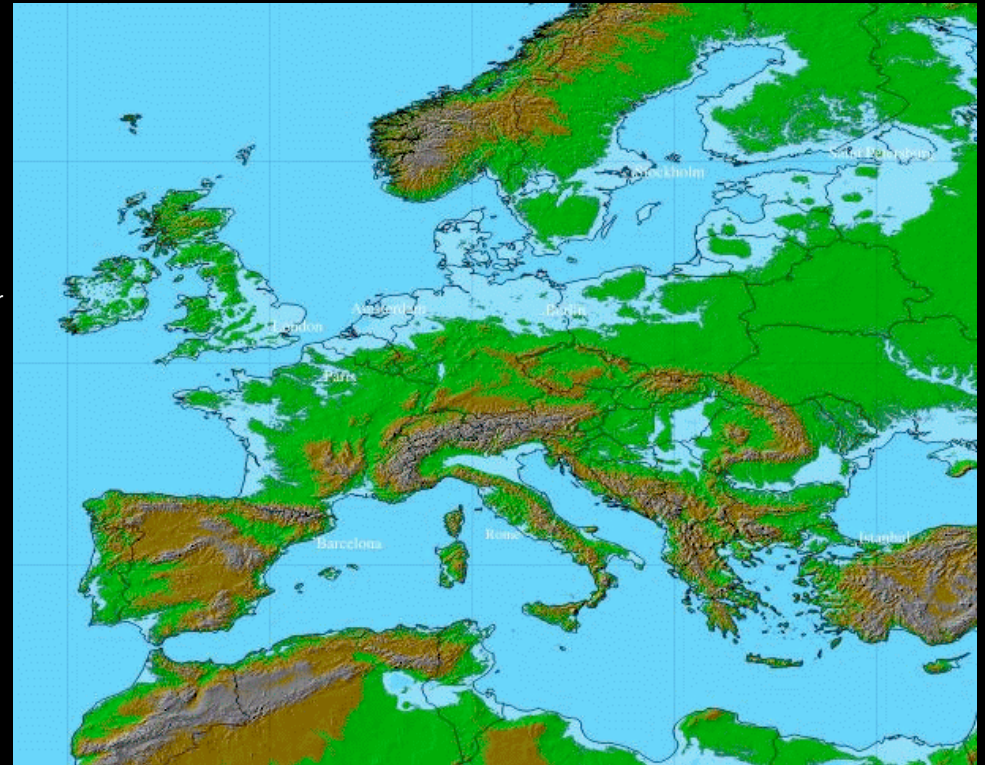
Researchers discovered only recently that inaccessible subglacial lakes in Antarctica periodically shed huge quantities of water.

Data collected by a satellite launched in 2003 -- the Ice, Cloud and Land Elevation Satellite, or ICESat -- revealed a complex network of subglacial plumbing in which water periodically cascades from one hidden reservoir to another.

But the new study, published online in the journal Nature Geoscience, is the first to measure the potential impact of this invisible flooding on sea-bound glaciers.

A trio of scientists led by Leigh Stearns of the Climate Change Institute at the University of Maine matched ICESat data against a nearly 50 year record of how fast the Byrd Glacier in East Antarctica has moved toward the sea.

The Abrupt Climate Change Report says under current non-stopping of current Business as Usual trends, it is now possible that by 2090 60m ocean rise will flood our major coastal cities and most valuable river delta farmlands. This is the impact on Europe.



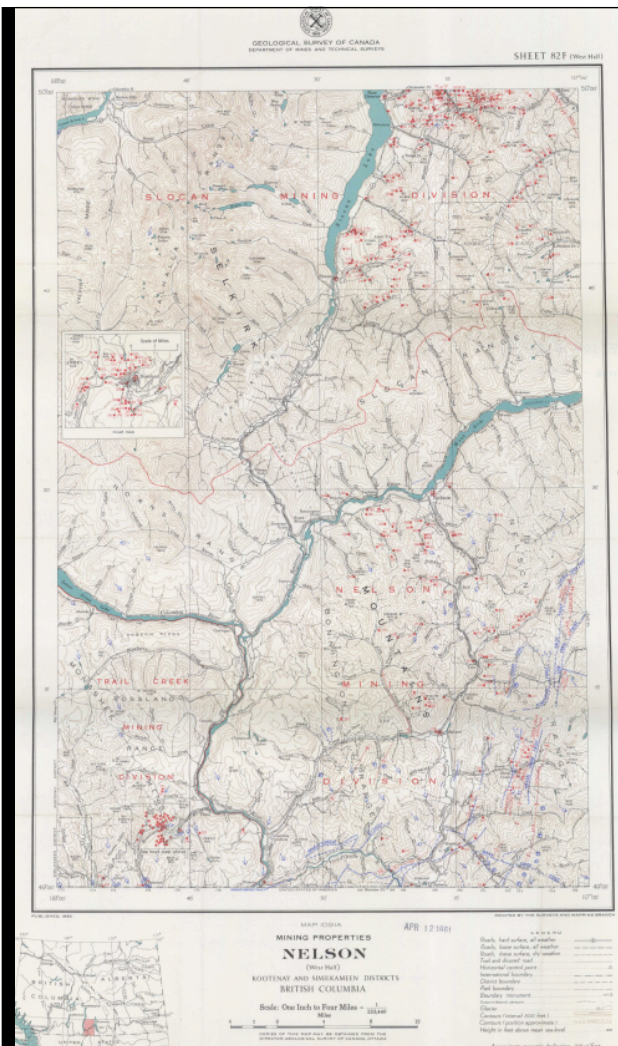
Ice Sheet Collapse: Europe Focus 2060 to 2090



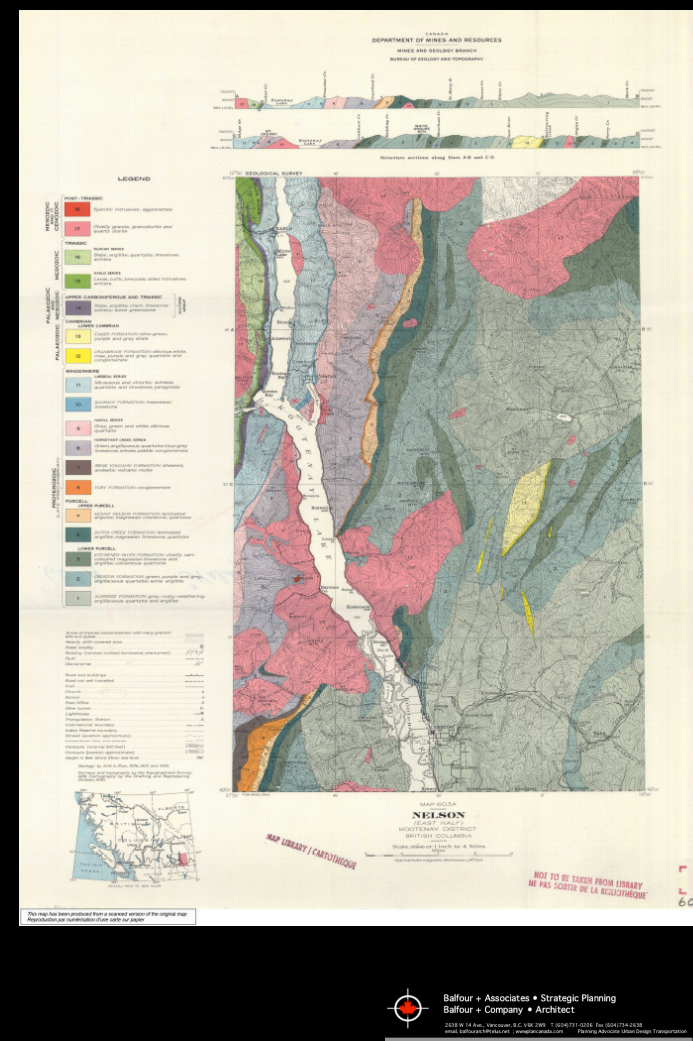
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First & 2nd stage ISC Vancouver



Part of New Pattern requires Geology Assessment



Battle Plan for the Commons

1. Hold and protect the Agricultural Land Reserve
2. Claw back the lands lost from ALR 1990-2008
3. Stop any more tolerance of the 'Rounding Out of Urban Areas'. Rounding is dead.
4. Preserve and protect and extend the Green fingers into urban areas
5. Build new green fingers in the urban area itself to make town sustainable/self sufficient locally
6. Prepare for Marbelization: death of suburbia scenarios, creation of urban villages on urban edge
7. Green commons creation in old suburbs counterbalances the urban clustering next to it.
- 8 Allow for some limited Marbelization in the ALR, for rural hamlets, extended family farm villages
9. Recognize Extended families beyond the nuclear family will include non-blood relatives.
10. Restore natural green (non-farm) green fingers of creeks, forest, fallow lands.
11. Restore roads not needed at oil era standards, but for scaled down transport demands
12. Promote alternate transport systems, recognizing the re-railling of continent necessity.
13. Provide for restoration of mixed uses into small community scale including industrial uses.
14. Ramp up old industrial and process oriented industrial education to allow all to adapt.
15. Encourage creation of local cooperative operations of every kind as sustainable institutions.
16. Adopt regional land management in full control of mixed environment for sustainability.
17. With downsizing of land management and local industry, formalize inter-regional trade.
18. Prepare for massive downsizing of non-essential industry, & non-value added jobs.
19. Radically alter education to provide for more generalists, all round thinking & adaptive workers
- 20 Prepare to shift education programs for re-localization but also scale of place of education.
21. Integrate public uses at village and town scale for efficiency and local control.
22. Assist adaption of old lands and buildings for new ways of working.
23. Prepare for adaptive re-use of now unsustainable buildings in new functions & recycle.
24. Ramp up local industry for salvage of oil era engineered products for continuity & new uses.
25. Prepare for influx of post oil and cold climate refugees.
26. Establish needed new community growth in new towns in hills and on rail lines.
27. River management and water/hydro licences have to be made for local use and control.
28. Local resource management must be formalized; not for growth but to limit growth.
29. On National and International level create majority of areas as NO Go zones for humans. World Parks. Restricted Human Impacts.

The Beginning

Global
Impacts



New Canton
Sustainability

The end of cheap energy
The end of key resources
Climate Change
Mass Migration



New Localization
Local Food Security
County Resource Management
Environmental Basin Protection
Democratic Governance
Local Industry & Subsistence



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Applying Green Fingers

- Existing city fabric still offers fingers, lifelines of green sustainability.

Scale of Solutions

Big footprint options not possible

Dispersed villages- need autonomy but cooperation

Housing clustering: energy & community fixes

Cooperative local economy vital

Seasonal survival: a new reality

Geothermal/earth sheltered towns

New wood & coal energy base

Extending growing conditions

Over-wintering - in crops & greenhouses

New animal husbandry vital

Self reliance: good insurance.

Old & New: alternate histories give more future options.



Circle the
wagons but let
people in?



Localization



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Essential Sharing



INTBAU Hamlet Seminars

- Equity can only be measured when it is lost.

Klugman, New York Times 2010.09



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